

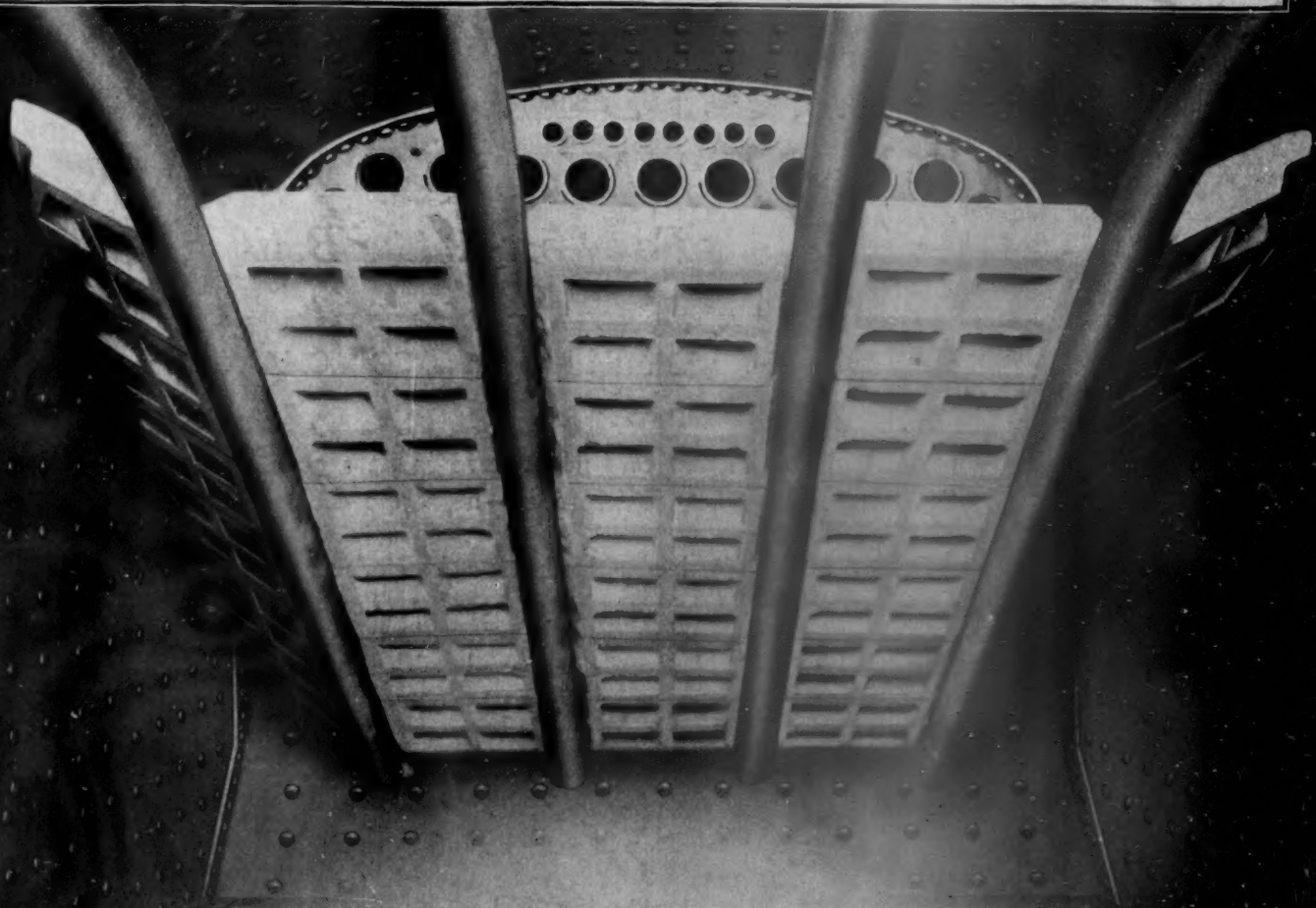
Railway Age

FIRST HALF OF 1920—NO. 11

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SIXTY-FIFTH YEAR

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A FEW YEARS AGO

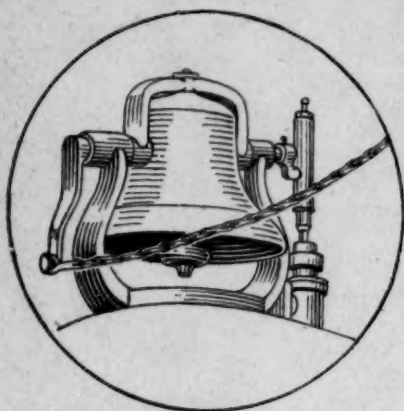
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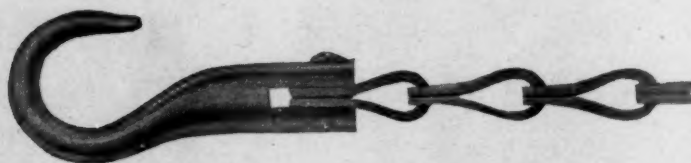
Hand brake and signal cord might serve in days gone by—today is different. Greatest possible safety is demanded—hence the demand for ACCO CHAIN.

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LARGEST MANUFACTURERS OF RAILWAY CHAINS IN THE WORLD

EDITORIAL

Railway Age

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At least one of the practices of the government in its operation of the railroads has met with public approval—the consolidated ticket office. While perhaps

The Consolidated Ticket Office

not so advantageous to smaller roads in large cities, it represents a saving to the roads and a convenience to the public. That this is true is evidenced in Galveston, Houston and Dallas, Texas; New Orleans, La.; Minneapolis, Minn., and St. Paul; San Francisco, Cal., and Los Angeles, and at various points throughout the West, the Middle West and the Central Eastern States, where the consolidated offices have been retained following the termination of government control. At Chicago the consolidated ticket office has been retained, at least temporarily, only two roads, the Chicago & North Western, and the Minneapolis, St. Paul & Sault Ste. Marie, withdrawing. In some cities, as San Francisco, New Orleans and Galveston, one or two roads have withdrawn from the consolidated office, but the larger number have remained. It is probably true that the consolidated ticket office works a hardship upon smaller roads entering a large terminal for, as has been pointed out in the *Railway Age* in the past, the public is prone to purchase its transportation from the largest and best known routes when at the counter of the consolidated ticket office. The offices, however, have met with public approval, and other things being equal, they should be continued, at least in cities of such size that the practice will not work a hardship on the smaller roads, since they make for greater efficiency and increase the output of the individual employee.

An engineman of a first-class passenger train who runs past a distant and a home block signal, both set against

Wantonness in the Engine Cab

him, and collides with a passenger train standing in the block-section ahead, is chargeable with wilful and wanton negligence, making the railroad company liable in damages to injured persons, even though they be trespassers; and all the more liable, of course, to a passenger. This radical doctrine is approved by the Supreme Court of the United States in a decision handed down on March 1 and reported in another column of this issue. Enginemen who desire to keep both their record and their conscience clear will do well to ponder this decision soberly. So far as can be judged by the records of innumerable instances, enginemen who thus run past signals without heeding them are in many cases chargeable, in the judgment of the ordinary critic, with nothing worse than forgetfulness, or unsystematic habits, or some other kind of pardonable negligence. The critic feels that he, himself, might have been guilty of the same lapse, and he takes a lenient view. If the engineman is a person of good moral character and known for years to have been one of upright purposes, it seems hard to adopt any other conclusion. The superintendent has to dismiss him from the service, but at the same time he sympathizes with him; he forces himself to dismiss, because he feels that only thus can he do his duty to the company. It is a familiar legal axiom that a man must be held responsible for knowing enough to realize the inevitable consequences of his negligent acts. If one points a loaded pistol at his child he is presumed

by the law to know that it may go off and kill the child. We do not often enough reflect on the parallel doctrine that running past a block signal may mean the death of innocent persons in the cars of a train which is standing in the next block.

The United States Supreme Court has ruled this week, in a decision elsewhere reported, that the Interstate Commerce

Kansas City Southern Wins Valuation Suit

Commission, in making a valuation of a railroad, must accept present value instead of original cost. Since freight and passenger rates are to be based on a valuation, this ruling of the court is of great importance. The tendency of the Valuation Section of the Interstate Commerce Commission has been to take full account of depreciation but to neglect to take into its accounts appreciation. L. F. Loree, chairman of the board of the Kansas City Southern, has persistently opposed this theory of the valuation engineers, and the present ruling of the court is in a suit which was brought by the Kansas City Southern. The road claimed that on the basis of present values the total valuation of the property would be increased by from \$5,000,000 to \$10,000,000. It is hard to overestimate the importance of the decision, both on account of the large sum involved directly and on account of the indirect bearing of the decision. There is a constant tendency on the part of public service commissioners and legislators to let the private investor run the risks of bad judgment, catastrophe, and depreciation and success of competitors while at the same time refusing him permission to realize to the full the profits of good judgment, fortunate circumstances, increment in value and success against competitors. Until the full text of the present decision is available it is not possible to say what effect it will have on that provision of the transportation act which deprives a successful road of part of its earnings above six per cent; but it is interesting as showing that the court will not accept an analogous theory in the valuation of a railroad's physical property.

One of the most remarkable illustrations of what can be done with or to statistics of railroad earnings was the statement

A Statistical Paradox

regarding the January earnings issued last week by the Railroad Administration. From this statement various newspapers produced headlines indicating that the government had earned a net operating income of \$64,000,000; that it had earned a deficit of \$64,000,000; that it had a net operating income of \$11,000,000, and that it had a deficit of \$11,000,000 for the month, and all of them, with some qualifications such as are not usually expressed in headlines, were approximately correct. The statement showed that the net operating income for January as shown by the accounts was \$64,000,000, but that this included about \$53,000,000 of the estimated back pay for the carriage of the mails which the post office department owes the Railroad Administration for 1919 and 1918 under the recent decision of the Interstate Commerce Commission in the mail pay case. However, none of this was earned in January, so the real net operating income for the

month was \$11,000,000, which also happens to be just \$64,000,000 less than the \$75,000,000 which the government guarantees to the railroads for a month as rental. So the real deficit was \$64,000,000. But if the net operating income be taken as \$64,000,000, as stated in the accounts, the deficit was only \$11,000,000, so we have a verification for all four of the contradictory headlines. One paper, however, used a headline that no possible construction could confirm. This stated that the government had shown a "profit" for January. It might also be added that the average net operating income for January during the test period, on which the standard return is based, was \$55,000,000, and as compared with this the Railroad Administration had a deficiency of \$44,000,000.

How Much Coal Can Be Saved by Electrification

SEVERAL PROMINENT ELECTRICAL ENGINEERS have stated recently that electrification would save two-thirds of the coal now burned by steam locomotives. This statement was contained in a paper presented before the Schenectady sections of the American Institute of Electrical Engineers by A. H. Armstrong and published in the February 20 issue of the *Railway Age*. Mr. Armstrong endeavored to prove his statement on the basis of coal consumed in electric power houses as compared with coal burned in steam locomotives, and did not include the saving of cost by the use of water power.

Ten-mile cost is the unit on which the railroad operator bases most of his calculations. Mr. Armstrong says freight can be hauled with a power consumption of 40 watts per gross ton-mile and that one kw.-hr. of electrical energy can be produced in a power house from $2\frac{1}{2}$ pounds of coal. Ten

$$\frac{40 \times 1,000 \times 2\frac{1}{2}}{1,000} = 100.$$

According to the report compiled by the Fuel Conservation Section of the Railroad Administration, the pounds of coal per 1,000-gross ton miles used for freight service on all regions during the first nine months of 1919 was 186.1 lb. Mr. Armstrong bases his value of 7 pounds of coal per kilowatt hour developed by steam locomotives on a series of eight tests made on Chicago, Milwaukee & St. Paul locomotives in 1910 and checks this value for 1918 as follows: He multiplies the ton miles hauled during 1918 by the value of 40 watts per ton mile and by 7 pounds of coal per kilowatt hour and arrives at a value of 170,000,000 tons. This he compares with the coal used by the railroads during that year, namely 176,000,000 tons, this last mentioned value apparently being the total amount of coal used by railroads, which includes coal for heat, power and light in railroad buildings and yards.

If electric and steam locomotives are to be compared, the electric should be compared with modernized steam motive power for that is what they must compete with in the future. Results obtained from tests of only comparatively modern steam locomotives for complete locomotive cycles, from one terminal to another and return, which include firing up and standby losses, show a coal consumption in pounds per 1,000 gross ton miles as follows: 139.07, 177.80, 150.65, 144.95, 175.79, 172.50, 185.83, 157.80, 178.04, 159.94, 204.53, 156.66, 204.48, 176.98, 198.19.

These tests were made in 1914, and several of them include delays of from 10 to 13 hours on the road because of the 16-hour law. The purpose of most of the tests was not to determine the maximum efficiency of steam locomotives, but to compare the relative merits of Mikado and Consolida-

tion locomotives; the result of 139.07 was obtained with a Mountain type locomotive in passenger service. More modern locomotives can show better results than these, and it is not at all out of reason to presume that they can haul trains at something less than 150 pounds of coal per 1,000 gross ton miles.

Mr. Armstrong maintains that electric locomotives will eliminate non-revenue tonnage to the extent of 12 per cent of the total tonnage. This is very possibly true, but even accepting all his claims for the electric locomotive, it would appear that the estimate of a two-thirds savings is considerably larger than is actually obtained.

The Report on Stresses in Track

THE SECOND INSTALLMENT of a progress report by the Joint Committee on Stresses in Railroad Track is presented on another page of this issue. This treatise, together with the first report issued a year ago, comprises one of the most valuable contributions to railway engineering literature that has appeared in many years. It is unfortunate that the committee has not seen fit to summarize the results of its work in a brief statement expressed in non-technical terms, so that the non-engineer railway officers could gain a better conception of the purport of this valuable investigation. That an appreciation of the importance of this study by the laymen is not entirely lacking is attested by the contributions which this committee has received from the American Railroad Association as well as from the individual railroads and manufacturers for the conduct of its work.

Since the building of the first railroad, nearly a century ago, the engineer of track has been groping more or less in the dark. Confronted with a complex structure that defies accurate mathematical analysis, he has been compelled to rely on the cut-and-try processes of experience in his endeavors for improvement. It is too much to expect that the mechanics of track will ever be reduced to the simple analytical processes available to the structural engineer. Progress more likely will follow the methods of hydraulic engineering, whereby experimental work will result in the evolving of constants for use with semi-empirical formulae.

The immediate gain from these investigations, as obtained from the report of the studies made thus far, will be in the formulation of general principles, many of which will constitute a confirmation in definite form of ideas that have prevailed in the past as the result of every-day experience with track maintenance. We may also expect to learn soon whether the greatest need is for stronger rails, for heavier ties, or for deeper and better ballast; whether ties ought to be longer or broader and closer together; whether we should tamp the ties for only a few inches on each side of the rail or for nearly the entire length, etc. One point that has been especially emphasized in the tests is the extent to which the effectiveness of the track is dependent on continued and thorough tamping. In other words, the tests are eloquent in demonstrating the extreme lack of permanence in the present day track structure. Perhaps this may afford the necessary incentive toward the expenditure of more money for track construction, and therefore less in the perpetual restoration of the damage done by the traffic. In this connection it is well to bear in mind that the work thus far has been limited to the accepted form of track. There is opportunity for much future work in experimental designs with rails, ties and ballast subjected to one modification or another, with the object of determining what improvements over present practice may be desirable.

Had the present report accomplished no other result, all of the expense and trouble it has entailed would be fully justified by the emphatic manner in which it has directed

attention to the need of a closer co-ordination between the mechanical and track departments. The results of the tests point to some serious conditions of overstress in the track resulting from certain unsatisfactory conditions, such as wheel concentrations and counterbalancing. On a few roads locomotive design is subject to some measure of control by those responsible for bridges and tracks (primarily the former), but on the vast majority of properties such supervision is perfunctory at best. There is a great need for improvement here. The locomotive must be designed not alone for efficiency as a mechanical device, but with proper regard to the effect it exerts on the track. The report of the Committee on Stresses in Track goes a long way toward pointing to the solution of this problem.

Labor's Share of Railroad Earnings

MANY RAILWAY EMPLOYEES have opposed the return of the railways to private operation from fear that this would be followed by reductions of wages. Reductions of the wages fixed under government control are, however, prohibited by the new railroad legislation until September 1, 1920. Meantime, in accordance with President Wilson's promise to the representatives of the labor organizations, the entire subject of railroad wages is to be reopened. The letter sent by the President to the heads of the railroad brotherhoods at the time he signed the railroad bill indicated that the matter should first be taken up by some kind of board composed equally of representatives of the companies and of the employees. If they cannot agree it would appear that the matters in controversy must be submitted to the Railroad Labor Board provided for by the new legislation.

This Board, which must contain equal numbers of representatives of the employees, the companies and the public, must, in determining the wages to be paid in future, take into consideration, among other things, the wages paid for similar work in other industries, the relation between wages and the cost of living, the hazards of the employment, the degree of responsibility involved, the character and regularity of the employment, and inequalities of increases in wages or treatment which are the result of previous wage orders or adjustments.

It is difficult to conceive of a method which would have been fairer to all parties concerned. Nobody, however, can tell how the new system of dealing with labor controversies will work. Upon how it works may largely depend the success of the new policy of railroad management and regulation which has been provided for by Congress and the President. Opinions, of course, differ as to whether the employees as a whole, or any particular classes of them, are entitled to have their wages advanced. While the law prohibits reductions of wages within the next six months, it does not prohibit advances, and there are reasons for believing that the railway companies will have to make advances to some classes in a short time in order to get as much labor as they need for certain kinds of work.

While the entire question of wages is pending, it is worth while to consider what part of the earnings of the railways labor has received in the past, and what part it is likely to receive in future. A tremendous propaganda is being carried on to make the employees believe that they have in the past received, and under private operation in future will receive, a much smaller part of the total earnings than they are entitled to, while the companies have received, or will receive, a much larger part of the total earnings than they are entitled to. When the earnings and operating expenses of the railroads are analyzed the facts disclosed as to the relative amounts of the total earnings which go to the employees and to the companies tell a story strikingly different from that told to the employees in the propaganda being carried on.

It is difficult to present these facts in a way which will make them readily understandable to those who are not used to dealing in large statistics. Perhaps as good a way as any is to show just how the railway earnings of an average month of 30 days are divided. In 1919 the railways were operated by the people of the United States through their government. The public leased the properties from the companies and put at the disposal of the management and the employees approximately \$19,500,000,000 worth of property. The people assumed all the risk of loss in operation. The employees contributed to the service the manual labor necessary to the operation of the properties. Now, what became of the money earned in each month of 30 days?

The earnings of 17½ days of each month were paid to labor in wages.

The earnings of 3 days were paid for fuel.

The earnings of 5 days were paid out for materials and supplies.

The earnings of 1½ days were paid out for taxes and equipment and facility rents.

This consumed the earnings of 27 days of each month.

The earnings of the remaining 3 days went to net operating income, which belonged to the public, and was used by the government to pay the guaranteed standard return to the companies. The net operating income was insufficient for this purpose and in consequence there was incurred a deficit which had to be met from taxes.

It is hardly necessary to say that most of the money paid for fuel ultimately found its way into the pockets of the miners, and that most of the money spent for materials and supplies ultimately was paid by the manufacturers to their employees.

The statistics on which the foregoing statements regarding the division of earnings of the railroads are based, are the statistics of earnings and expenses in 1919, which are approximately as follows:

		Per cent of total earnings
Total operating revenues.....	\$5,200,000,000	100
Operating expenses	4,420,000,000	85
Wages	3,020,000,000	58
Fuel	500,000,000	10
Materials and supplies	900,000,000	17½
Taxes, equipment, rent, etc.....	248,000,000	4½
Net operating income	516,000,000	10

Under the new legislation the Interstate Commerce Commission is authorized to allow the railways to earn an average of 6 per cent. If the Commission should take the book cost of road and equipment as a basis and allow 6 per cent to be earned on it, the net operating income would be \$1,170,000,000, or about \$650,000,000 greater than in 1919. Assuming that the Interstate Commerce Commission should establish rates which would yield this amount of net operating income, and that all the items of operating expenses and also taxes should remain unchanged, the earnings of each average month of 30 days would thereafter be divided as follows:

	Days
Wages	15½
Fuel	2½
Materials and supplies.....	4½
Taxes, etc.	1½
Net operating income	6

What about the "fancy" salaries of the officers, of which so much is said? The salaries of all general and division officers amount to only about 1 per cent of the total earnings of the railways, which means that they are paid from the earnings of between 7 and 8 hours of each month.

It will be seen that even when the rates of the railways are so readjusted as to enable them to earn an average of 6 per cent the employees will continue to get more than one-half of the total earnings, while the companies and their officers together will get only one-fifth of them. As a matter of fact, the companies under the new legislation probably will not keep one-fifth, as one-half of the surplus earnings

over 6 per cent earned by each road will have to be paid to the government. It may be asked, however, why the companies should be allowed to receive and keep almost one-fifth of the earnings? They are entitled to receive this share of the earnings because they furnish the right of way, the tracks, the locomotives, the cars, and all the other facilities which go to make up the physical plant of the railways without which the employees could not earn anywhere near as much wages as they do, or the public receive anywhere near as much service as it does. These facilities have been provided by the savings of the generations of persons who have invested their savings in railway bonds and stocks.

But, says the socialist and Bolshevik propaganda, labor creates all wealth and therefore should have it all. But certainly the labor of the present generation of railroad employees has not created the enormous railroad plant of the United States. Therefore, certainly those now rendering the service of labor to the railroads are not entitled to all the earnings produced by the railroads.

As a matter of fact, the existing railroad plant has been brought into existence by the labor and the savings of several generations of workers and savers, and if the present generation of railroad workers is entitled to benefit, as it does benefit, by the contributions of past generations of workers to the creation of the present railroad system, as well as by its own work, then the present generation of owners of stocks and bonds is equally entitled to benefit by the contribution made by the savings of past generations to the creation of our present railroad system as well as by its own invested savings.

The propaganda of misrepresentation to prejudice and inflame railway employees against private ownership and management doubtless will be continued. If, however, railway employees will study the facts they will find that they are receiving a much larger part of the earnings of the railroads than the propagandists would have them believe; that they stand to benefit even more by efficient operation of the roads than do the owners; and that, since private management is almost sure in the long run to be more efficient than any other kind of management, it is to the interest of the employees themselves to defend and not to participate in attacks upon it, and to help the managers all they can to increase efficiency.

Taxation Without Representation

THE AGREEMENT recently entered into between the director general of railroads and the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees is not meeting with universal favor among the clerks whom it purports to benefit. This is not surprising when it is remembered that in the general offices of a large number of the railroads fully 85 per cent of the clerks are not members of the brotherhood and yet are required to submit to the schedules arranged by that organization. The main objection on the part of the clerks to the schedule prepared by the brotherhood, and by which they must abide, is that they must now work overtime, become immune from sickness and take but one week's vacation a year in order to obtain as much remuneration as heretofore.

The situation of a clerk who received \$102 a month under the old rules is an exemplification. The agreement calls for hourly and daily bases of pay and sets forth the method by which the present monthly and weekly pay bases may be changed to hourly and daily. This, briefly, is "multiply the monthly rate by 12 and divide the result by 306." By this method the clerk determines that his \$102 a month means \$4 a day. The schedule requires a six-day week, each day to consist of eight hours with the possible exception that, where it has been customary to grant a half-

holiday once a week, that usage shall not be rescinded. Consequently, should the clerk work 50 weeks a year, as he has done, his pay would amount to \$1,200 per annum, provided he had not lost time because of sickness. While under the old rate of pay, the clerk would have received \$1,224 for the year's work and would have had two weeks' vacation on salary. Furthermore, if he should have been ill at any time for a short period it is probable that his pay-check under the old system would not have been smaller because of the time lost.

The \$24 difference is small, of course, but the employees fail to see what has been gained by the change to the new plan. Employees at higher monthly and weekly salaries will lose correspondingly larger sums by the year's work under the new rates. The schedule further includes many rules which are good reading, but unproductive of particular benefit to the clerks and others similarly employed. The clerks are asking why they are forced to work under a schedule, in the making of which many did not have a voice and which does not increase their yearly income, forces them to work overtime if the "envelope" is to equal pre-schedule ones (even that possibility being dependent on the will of the employer, as the clerk cannot work overtime unless authorized to do so) dampens initiative and ambition and obviates the necessity of exercising brain-power except in the hope of obtaining, as a reward, a position beyond the reach of the brotherhood's schedule.

New Books

Proceedings of the Traveling Engineers' Association. Edited by W. O. Thompson, secretary. 366 pages, 5¾ in. by 8½ in., illustrated, bound in leather. Published by the Association.

This volume contains the proceedings of the twenty-seventh annual convention of the association held at Chicago, Ill., September 16-19, 1919. Committee reports and individual papers are given in full with the discussion by the members. Among the subjects considered are: Methods for handling air brakes; adjusting tonnage of slow freight trains; advantages of the application of stokers to modern locomotives; locomotive efficiency and fuel economy; and caring for locomotives at terminals.

Proceedings of the American Society for Testing Materials.—Two volumes. Part 1, 799 pages; Part 2, 802 pages. Illustrated, 6 in. by 9 in. Bound in cloth. Published by the American Society for Testing Materials, C. L. Warwick, Secretary, University of Pennsylvania, Philadelphia, Pa.

These two volumes contain the proceedings of the twenty-second annual meeting of this society, held at the Hotel Traymore, Atlantic City, N. J., June 24-27, 1919. About 40 pages of Part 1 are devoted to the Edgar Marburg Memorial session, while the balance of the first half of the book covers the reports of the committees on ferrous and non-ferrous metals, on cement, lime, gypsum and clay products and other miscellaneous materials such as paints, lubricants, etc. The remainder of the volume contains the tentative standard specifications for ferrous metals, including such products as steel tie plates, boiler and firebox steel, carbon tool steel, track bolts and wrought-iron bars, etc.; for non-ferrous metals, including bronze bearing metals for turntables and bridges, and white metal alloys, etc.; for cement, lime and other miscellaneous products and materials. Part 2 contains the technical papers and includes monographs on the magnetic analysis as a criterion of the quality of steel and steel products and other papers on the same question of magnetic analysis; some tests of light aluminum casting alloys; the modulus of elasticity of concrete, paint as a plastic material and various testing apparatus and methods of testing.

Letters to the Editor

More Comment on Opportunities for Engineers

BERKELEY, Cal.

TO THE EDITOR:

Our civil engineering college maintains a four years' course of instruction in civil engineering. Our announcements advise the student of proper sequences best adapted to particular lines of study. For example, we have outlined for student guidance a four years' course in railroad engineering, another in sanitary and a third in irrigation engineering. It is plain, therefore, that our university does give attention to the preparation of students for railway work.

In recent years a number of our students have indicated a desire to study especially railway subjects. A number of these men have entered railway employ, but most of them have promptly left these railway positions because of meager pay. The few who have remained have shunted from engineering employment to contracting in connection with railway construction, or have left the purely technical work of the railway staff for positions in the administrative, operating, freight departments, etc. When those in authority who employ young men for technical work in the railway engineering departments increase the wages of young engineers, and more particularly give them an opportunity to learn something beside mere routine in surveying and track-laying, then there will be a change, but not until then.

C. DERLETH, JR.,

Dean, College of Civil Engineering, University of California.

Encourage the Younger Men

CHICAGO.

TO THE EDITOR:

I was very much interested in the editorial in your issue of February 13, entitled "Bringing the Younger Men Into the Large Railway Associations." The ideas expressed therein are most timely and I heartily concur in them. Why is it that the railway companies and the railway associations do not give more thought and attention to the training of the young men who enter railway service? Why do they not encourage young men to learn the business of railroading by affording them every opportunity to learn? What better method could be devised for combating the evil in organized labor, that evil which makes no distinction between the learned and unlearned, the efficient and the inefficient, and what better practice could be followed to attract a better type of employee?

In these days we are apt to conclude that about all the ambition a young man has is to get as big a pay check as possible for as little work as possible. The unions welcome him into their organizations with open arms, and instead of imbibing that finer spirit of unionism, that spirit of a square deal of which unionism was conceived, he imbibes the apparently more modern spirit of "get all you can for as little as possible," and as a valuable employee he is nil. There are, however, a few young men, a remnant, who are not of that sort. They are the young men who are conscientious and industrious, anxious to learn and to fit themselves for greater responsibilities and service and they are the ones who do not measure success by their pay check, but rather by their service and the opportunities for service afforded them. These men deserve consideration, for they are to be the leaders of tomorrow. They ought not to be obliged to

wait until they have obtained official positions before being permitted to enjoy the benefits of membership in railway associations. Surely the progressive spirit of youth, plus the conservative spirit of maturity, equals a combination that ought to produce worthwhile results.

The plan of the Railway Signal Association, described in your editorial, is a splendid beginning and a step in the right direction and I, for one, would like to see other associations take similar steps.

ARTHUR J. GABOSCH,
Clerk, Chicago, Rock Island & Pacific.

Curve Superelevation and Excessive Speeds

CHICAGO.

TO THE EDITOR:

I have read with concern, as well as with interest, the comments of the Chief of the Bureau of Safety in reference to the derailment on the Southern Pacific near Vincent, Cal., published in your issue of February 13, page 489. I have no intention of discussing the wisdom or unwisdom of authorizing a speed of 40 m.p.h. on an 8-deg. 10-min. curve, carrying 4-in. superelevation. Personally, I should have preferred a limit of 35 m.p.h. for such a condition, but from long experience in handling curve problems in actual practice, I am convinced that a speed of 44 m.p.h. would not have been unsafe, and this is 10 per cent above that authorized by the rule in the case in point.

My view as to the maximum safe speed is confirmed by the curve superelevation table of a prominent Eastern road, wherein it is indicated that the maximum safe speed for an 8-deg. curve with 4-in. superelevation is 45 m.p.h. (Interpolation was necessary to meet the case cited, and this was made on the basis of the squares of the speeds shown.) Incidentally, a margin of 10 per cent for allowance of error on the part of the engineman is estimating the speed being used is, I believe, generally regarded as conservative. A stricter application of the rule would require that in no case should the permitted speed be exceeded.

The suggestion of the Chief of the Bureau that a large variation in estimating speed shall be provided for is not only subversive of efficient locomotive running, but it vitiates the whole purpose of speed limitation. A rule is only effective when it has but one interpretation. It is not safe to have it known that a speed limit has been made low purposely to provide that in the event of bad judgment a much higher speed will still be safe. To say nothing of the erratic operation that would follow the variable construction of the limitation, it would utterly defeat its object as a safety measure. On the other hand, to apply an excessive elevation for the speed normally used would induce increased maintenance and discomfort to the railway passenger; and it must not be overlooked that a high superelevation, when moved over at low speed, has its own elements of danger.

In recommending absolute compliance with the American Railway Engineering Association rule, the chief of the bureau is taking debatable ground. It is not denied that most roads regard with favor the rule referred to as a theoretical basis for superelevation. In the Manual it is only claimed that the rule gives an "essentially correct theoretical elevation for ordinary practice."

Many men who travel are familiar with the 4-deg. 20-min. curve just east of North Philadelphia. They have noted that this curve is frequently traversed at 60 m.p.h. It rides more comfortably at 57 miles per hour than at either lower or higher speeds. For 57 m.p.h. a superelevation of 9 in. is theoretically required, while the elevation carefully maintained, is 6 in., or 3 in. under the theoretical figure. It has been distinctly recognized by the A. R. E. A. that

a theoretically unbalanced elevation of 3 in. involves no element of danger.

The writer has offered as a safe empirical rule for curves of 2 deg. and over a modification of the theoretical formula in the substitution of the decimal 0.0004 for the factor 0.00066, with an increasing restriction in speed for higher degrees, so that in no circumstance will the modified super-elevation thus obtained be more than 3 in., and for branch lines preferably $2\frac{1}{2}$ in., less than that obtained by the A. R. E. A. formula. Numberless data can be offered to show that the modified formula represents accurately the practice on many of the safely-operated lines in the Eastern section of the country.

Further, in reference to the recommendation of the Chief of the Bureau of Safety that the A. R. E. A. rule for super-elevation be rigidly adhered to, it seems to me this will require trains to come to a stop at crossovers or other diverging turnouts and remain so, since no elevation at all is practicable. But who questions that 40 m.p.h. is frequently used on the 1-deg. 40-min. curve of a No. 20 turnout, requiring by the rule $1\frac{3}{4}$ in. superelevation, and that 30 m.p.h. is regularly authorized for such turnouts?

W. F. RENCH.

The Universities Are Willing to Serve

URBANA, Ill.

TO THE EDITOR:

In 1907 when the railroads were in their prime there were many more positions open in railway civil engineering than there are at the present time. Since then, for one reason or another, the railways have been obliged to curtail expenses, until at present they are doing only that which is absolutely necessary for the operation of the roads. Location and construction have been almost entirely eliminated, leaving maintenance of way as the field of activity. The duties of the present-day young maintenance engineer involve the making of estimates and station surveys and the doing of other routine work more or less monotonous in its nature. While the salaries have increased to a certain extent, they have not kept pace with those paid in other lines of industry. The engineers in authority are not responsible for this condition of affairs, for certainly the engineer, above all others, is interested in seeing his business expanded. Since the opportunities offered by these other fields are gone, promotion is necessarily slow. There are enough old men in service to more than fill the places higher up. Many young men recognize this condition and leave to take positions elsewhere; others go because their services are no longer needed. Many of the men interested in the kind of work that the railroad naturally offers have turned to highway engineering, where the field is new, work interesting, and opportunities for promotion good.

A few of the students that have registered in the University of Illinois have come directly from railroad service, where they have been employed as assistant foremen or possibly foremen on extra gangs, rodmen and chainmen on maintenance parties. They have come with the idea of studying railway civil engineering and returning to the road to practice it when they have finished their college education. During their school work they naturally hear from their fellow students about openings in highway, structural and other lines of engineering; and seldom does this class of men return to the railroad after graduation.

Our instructors do encourage the young man, especially interested in railway work, to take up studies that will prepare him for that line of service; but they are not all quite so enthusiastic in their solicitations as they would be if they knew that the young man would enter railway work upon graduation, or even continue in it once he began it. The

following statement by Professor A. N. Talbot illustrates the point very appropriately: "The records show that of the graduates of the University of Illinois in civil engineering from 1900 to 1915, only about 10 per cent were engaged in railroad work at the beginning of the war. Of the members of a student society composed principally of civil engineering students, less than five per cent are now employed in railroad work, the data covering membership from 1908 to 1919. Formerly a very large proportion of the graduates were engaged in railroad engineering work."

A few years ago many young men did enter railway engineering practice after they had finished their course at the university. These men continued with the roads a part of a year, a full year, two or three, or possibly as many as eight or ten years. Then for some reason they quit or were let out, and in many cases they came back to the university to tell the instructor their experiences and incidentally to tell their student friends; so the tradition has spread that railroad work does not pay well and does not offer the opportunities for promotion that exist in other lines of engineering.

There is no line of industry that needs a better grade of engineering than the railroads. The University of Illinois long ago recognized this, and in 1907 established a department of railway engineering given up entirely to teaching and experimentation in railway work. The instruction offered to students covers railway civil engineering, railway electrical engineering and railway mechanical engineering.

The university has sent out from time to time bulletins and circulars describing the work and equipment of the railway engineering department and the opportunities it offers to students that register in its courses. This literature has been sent to railway officers and prospective students with the idea of creating an interest and encouraging young men to enter this particular field of engineering. The time will come, and possibly is already here, when this unfortunate tradition that seems to prevail among our college men can be reversed. The University of Illinois believes it will be reversed, and is showing its good faith in its belief by establishing additional courses to train men for railway service. The university is just now preparing four and five-year combination courses in railway engineering, economics and transportation, with the idea of giving some technical training to the man who is preparing for an administrative position or some administrative training to the man who is preparing for a technical position. The intention is to turn out men that have a broader vision of railway service. These men get a fundamental training in both the engineering and transportation phases of the subject and should be better equipped than those who have not had such an opportunity for study.

The University of Illinois realizes the need of the railroad for better men and is making an extra effort to supply them. It has from time to time solicited suggestions for a better co-operation with the railroads and the public, for it realizes the only function a university has is to serve the people and their industries. The university would be more than willing to meet any group of men who are seriously interested in the problem to discuss the matter on a common ground; and no doubt such effort would result in a substantial benefit to all concerned.

E. E. KING,

Professor of Railway Civil Engineering, University of Illinois.

SHORTSIGHTED POLICY.—Those who oppose the proposals for increased rates are shortsighted. It is generally conceded that there must be provision made for more railway revenue and for assured profits. The railway companies cannot hope to serve the public as it should be served unless they are permitted to develop with other industries. They must raise large sums for replacements and for expansion, and that cannot be had unless investors see hope of satisfactory return, not only now, but in the future.—*Muncie (Ind.) Star*.

Railroad Mechanical Department Activities in 1919*

Equipment Conditions; Distribution of Labor and Power; Safety Appliances; Standard Practices

IN GENERAL, the work of the Mechanical Department has been similar to that performed during 1918, except that it has been more extensive. The organization has not been substantially changed, but has been somewhat increased over that at the close of 1918. At present it consists of Frank McManamy, assistant director, in charge of the department; George N. DeGuire, general supervisor of equipment, and George E. Dougherty, assistant general supervisor of equipment, whose duties are to supervise in a general way the condition of and repairs to locomotives and cars in railroad shops and to check up shop practices and expenditures with a view to promoting both efficiency and economy in the maintenance and operation of equipment; F. P. Pfahler, chief mechanical engineer, whose duties are to supervise the design and construction of new locomotives and cars, pass on disputed points in connection therewith, check bills for alterations or changes, handle locomotive assignments, and such other duties as may be assigned to him; J. J. Tatum, general supervisor of car repairs, whose duties are to supervise the general condition of and repairs to freight and passenger cars, see that repairs are promptly and efficiently made, and arrange for the distribution of cars as between different shops, so that the greatest efficiency may be obtained; J. R. Jackson, mechanical engineer, who in addition to the usual duties of a mechanical engineer is also in direct charge of the investigation of new inventions and appliances. In addition there is a field force of 24 men, whose duties are to make special investigations, check up methods of handling and repairing locomotives and cars, promote shop efficiency and such other special work as may be assigned; and the necessary office force consisting of 52 persons who perform the usual duties in connection with the handling of correspondence and records.

The field force has been a potent factor in promoting efficiency and controlling the cost of maintenance of equipment, and the part performed by the force in the matter of assisting the work of both the locomotive and car departments on the different railroads and the consolidation of the work as between different railroads, has been of real value.

No additional orders for new locomotives or cars have been placed during the year 1919, but work has been pushed on the completion and assignment of the cars and locomotives built to standardized designs which were ordered during the year 1918.

Maintenance of Equipment

During 1919 the railroads in federal operation operated 65,100 locomotives, 54,193 passenger train cars, and an average of 2,430,719 revenue freight train cars.

There has been no shortage of locomotives during 1919; in fact, the increased efficiency in locomotive maintenance and operation effected by the more general use of locomotive repair facilities and by increased efficiency in handling at terminal points has resulted in a surplus of locomotives during the entire year.

Owing to the increased capacity of the locomotive repair shops there were on January 1, 1919, 1,384 locomotives in good condition in storage. On April 1 this number had increased to 4,486. This early period of 1919 was one of light business, which rapidly changed to brisk traffic about the middle of the year. At present there are 2,395 locomotives

stored in first-class condition, which is something that has never before existed during periods of heavy traffic.

During the period from November 1, 1918, to September 30, 1919, 43,608 locomotives were given classified repairs and 298,183 locomotives were given repairs requiring over 24 hours. Ordinarily running repairs which are required after each trip and which consume less than 24 hours are not included.

The classified repairs were in accordance with the United States standard classification, which requires certain essential repairs to be made and locomotives placed in condition to perform a specified term of service before they can receive credit for class repairs.

On January 1, 1919, there were 138,722 freight cars, which is 5.8 per cent of the total revenue cars in service at that time, in bad order. This number decreased so that on March 1, 1919, only 127,336, or 5.2 per cent cars were in bad order.

The adjournment of Congress on March 4, 1919, without providing the appropriation requested by the Railroad Administration made it necessary to exercise the most rigid economy in maintenance of equipment expenditures; therefore car-repair forces were reduced on practically all railroads under federal control. This reduction in car-repair forces resulted in an increase in the number of bad-order cars. On June 20 instructions were issued to restore car-repair forces, but before this order could be made effective on all railroads the number of bad-order cars had still further increased. The strike of the shopmen on August 1, which, although unauthorized by the employees' organizations, resulted in large numbers of car repairers leaving their work for a period of approximately 10 days, still further increased the number of bad-order cars, until on August 16 there were 228,549 bad-order cars, which is 9.2 per cent of the total number of revenue cars.

Since that time, however, the work of conditioning freight cars has been vigorously pushed until at present there are but 127,182, or 5.1 per cent revenue cars in bad order that will be repaired. This does not include 19,300 cars set aside under the provisions of Circular 20, issued by the Division of Operation, which are in effect condemned cars which will not be repaired by the administration and are being held because the owning corporations have not agreed to their dismantling on the basis given in the master car builders' rules.

During the period from November 1, 1918, to September 27, 1919, a total of 21,080,127 freight-train cars were repaired in the shops of railroads in federal operation. During the same period 14,119 cars were repaired in contract shops, and 20 new contracts were made covering 17,600 cars to be repaired by such concerns. This illustrates the diligent efforts which were made to condition freight cars to meet the demands of the traffic.

During the period from November 1, 1918, to September 1, 1919, 417,320 passenger-train cars were given either running or classified repairs.

Immediately following the signing of the armistice instructions were issued to eliminate where practicable the overtime worked in repair shops, and employees in all shops and car-repair plants were reduced to the regular day's work of eight hours. While this of necessity resulted in a decrease in the number of cars repaired, it was only fair to employees who for many months had been faithfully working whatever hours were required of them by the administration, and the restora-

*Extract from the report of the director of the Division of Operation of United States Railroad Administration. Other parts of the report will appear in subsequent issues of this publication.

tion of the established eight-hour day was a deserved recognition of the co-operation and faithful service rendered.

The difficulty in securing necessary material for repairs to both locomotives and cars continued for a considerable portion of 1919. Where shortages of material were found to be delaying equipment, necessary action was taken to obtain either from the manufacturers or from some other railroad the material needed to complete the work and avoid delay to equipment. This has been one of the most valuable activities of the central administration.

The work of modernizing existing equipment has not been overlooked, and in line with plans which were partially completed when the roads were taken under federal control 1,123 locomotives have been equipped with superheater since November 1, 1918, preference in all cases being given to the heavier power.

Other devices such as stokers, power-reverse gears, power-grate shakers, and similar appliances which make for efficiency and economy in locomotive operation have been applied to the extent that the conditions under which the railroads are operated would permit.

The work of applying headlights to locomotives in accordance with the orders of the Interstate Commerce Commission has been diligently followed with the result that substantial progress has been made, and the indications all point to the fact that this work will be completed well within the time provided.

Control of Maintenance of Equipment Expenditures

From the beginning the Mechanical Department has diligently endeavored to maintain the equipment without any idea that economies should or could be realized by reducing maintenance which the equipment ought to receive. With this thought in mind, we began immediately after the roads were placed under federal control to check locomotive shop output and roundhouse and shop costs so that all unnecessary expenditures might be eliminated and greater efficiency in shop and roundhouse operation obtained. Where improper practices were found to exist, action was taken through the regional directors to have more efficient methods adopted.

In order that expenditures for maintenance of equipment might be measurably controlled, federal managers were required to prepare and submit on suitable forms information regarding maintenance of equipment during the test period, during the seven years prior to the test period, as well as during the calendar year of 1918. This information was collected on the basis of the miles of roads operated, the units of equipment, and the locomotive and car miles, together with averages showing the cost of locomotive repairs separately on the basis of miles run, tractive power miles, and per locomotive owned.

Freight-car repairs were reported on the basis of 10,000 freight-car miles and freight cars owned, and the passenger-train car repairs were reported on the same basis.

From these reports studies of the maintenance of equipment costs were made and furnished to the regional directors, to keep them in touch with the actual conditions and aid them in the control of maintenance of equipment expenses.

In this work we have constantly kept before us the thought that the ability of the railroads to move present and prospective business was the first consideration, and after this requirement had been fully met reductions in maintenance expenditures which could properly be made should be made on railroads which were clearly overexpended in the matter of maintenance of equipment in comparison with the test period, but in no case has the fact that a railroad has been overexpended for maintenance of equipment been permitted to reduce maintenance to a point where it would interfere with the handling of traffic.

Analyzing and tabulating the information received from the different railroads in connection with the maintenance of

equipment expenditures is going forward, so that all available data may be in shape for proper consideration when needed. This also includes the establishment of equation factors for increased costs of labor and material to enable comparisons to be made as between the test period and the period of federal control.

Damage to Cars in Yards and in Trains

During the first year of federal control it was noted that the number of freight cars damaged in yards and in trains was excessive. A careful study was made to locate the cause, and it was decided that the number of cars so damaged could be materially reduced by more careful inspection and maintenance of hand-brake equipment, and by more careful supervision over switching in yards and the operation of trains.

A comparison of the last 7 months of 1918 with the first 10 months of 1919 will show the effect of the work which was done to reduce this damage. We are able to show this information for only 7 months of 1918 because prior to federal operation such information was not generally kept, and it was not until June, 1919, that reports were obtainable from all railroads.

During the 7 months for which this information was available in 1918 there were 179,145 cars damaged in yards and 401,670 damaged in trains, a total of 580,815 cars. During the period from January to October, inclusive, 1919, there were 179,921 cars damaged in yards and 335,798 damaged in trains, a total of 515,719 damaged, which is a decrease over the previous year of 37 per cent.

The average cost per month to repair the cars damaged in 1918 was \$1,779,240, which was reduced to \$1,366,555 in 1919, or at the rate of an annual saving of \$4,952,225.

Reducing the damage to equipment also reduces the damage to lading and permits the cars to remain in service. The reduction in freight claims and the value of cars in service can only be estimated, and therefore are not included in the above saving.

It would be exceedingly profitable for the railroads, after their return to private control, to continue a careful check of the damage to cars in yards and in trains and to establish a closer supervision over switching and train handling.

Committee on Standards

The present committee on standards was created as of July 1, 1918, for the purpose of carrying forward and completing the work of the original committee which designed the locomotives and cars, and which on account of other important duties of many of the members of that committee could not be continued.

In addition to completing the work started by the original committee this committee has been called on to pass on various devices and methods used on locomotives and cars, as well as methods or devices intended to facilitate repairs and improve operation which were submitted under Circular 18. The committee has also been called on to act in an advisory capacity in the general activities of the mechanical department, including the preparation of specifications for new equipment, tests of material, and maintenance of equipment, as well as in connection with the use of numerous patented articles submitted for the use of the Railroad Administration.

The work of this committee in establishing standards for maintenance as well as for new equipment has been extremely valuable, and has made possible economies in the maintenance of equipment and has reduced the delay to cars on repair tracks by providing a standard which could always be used without waiting to send to the home road for necessary material to make repairs in kind. This committee has also been called on to investigate and pass on various methods or appliances essential for the promotion of safety in locomotive or train operation.

In order to handle the large number of inventions and

devices to be used on or in connection with locomotives and cars, a committee on appliances, which is really a sub-committee of the committee on standards, was created. The work of this committee consists of investigating all inventions or devices submitted to the Railroad Administration in accordance with Circular 18 for use or for test; eliminating those that were clearly impracticable or unsuitable; making investigations of the results of the tests conducted by the various railroads of the different appliances, and submitting to the committee on standards those which appear to have sufficient merit to justify further investigation.

So that all matters submitted might have uniform treatment, the rules provided in Circular 18 have been strictly followed. These rules specifically provide that arrangements for tests of any device will not be made until an examination of the plans discloses the necessity or desirability of conducting such tests under service conditions. In case such test is to be made, the appliance must be furnished, installed, and operated without expense to the Railroad Administration. This work has covered a very wide field.

A classification of the invention files as of October 1, 1919, under 12 headings shows a total of 1,160 devices and appliances. The investigations and reports on 225 of these devices have been completed with the exception of 14 which were recommended for service tests. Reports on 245 devices are being delayed waiting for additional information from the inventor or railroads which have used the device.

Safety-Appliance Laws

The enforcement of the safety-appliance laws, which has been handled by the Railroad Administration since the railroads have been under federal control, has been under the direction of the Mechanical Department. During that period 13,295 specific violations have been filed by the Interstate Commerce Commission, all of which have been handled for correction.

As provided in General Order No. 46, reports of all violations were submitted to the Mechanical Department. The greatest number of such violations submitted was during the month of February, 1919, when 1,970 were submitted. Since that time the number of such violations has steadily decreased, only 731 having been filed in September, which indicates that the action taken has been effective.

During this period a number of matters which have been in dispute between individual railroads and the commission for several years have been satisfactorily settled. Among these is the matter of controlling the speed of freight trains on grades without the use of hand brakes. Failure to control trains with air brakes has resulted in numerous suits being filed by the Interstate Commerce Commission. For instance, this question was taken up with the Baltimore & Ohio Railroad in 1908, since which time it has repeatedly been before the courts without a definite conclusion.

It is believed that the matter has now been settled by conference and joint investigation arranged by the Mechanical Department between the Bureau of Safety of the Interstate Commerce Commission and the railroad officials. At this conference an agreement was reached as to a practical method of handling trains on the various grades as required by law, and instructions were issued by the Railroad Administration putting this arrangement into effect.

Similar conferences have been arranged in connection with other matters, and by working in close co-operation with the representatives of the commission on these matters it is believed that much permanent good has been accomplished.

Action Taken to Promote Safety

In addition to the enforcement of the safety-appliance laws, an understanding was reached with the employees who in the past have been urging safety legislation, both state and national, that before such action was taken their de-

mands would be presented to the Division of Operation for consideration, with a view to providing all necessary safety devices for the protection of the employees without the necessity of additional legislation, either state or national. Pursuant to this understanding arrangements have been made by the Mechanical Department to equip locomotives with the following devices for the promotion of safety or efficiency, in addition to those required by federal laws:

Mechanical fire doors, lagging on steam pipes in cabs, standardization of location of air-brake cut-out valves in cabs; relocating air compressors so they will not obstruct the view of enginemen; applying handholds and suitable steps on sides of cabs; providing sanitary drinking water on locomotives; locating water glasses so they can be easily read by engineer and fireman or applying second water glass if needed; applying electric marker and classification lamps; closing openings in cabs around boiler heads, injector pipes, reverse levers, etc.; providing cab heaters; equipping locomotives in cold climates with suitable cab curtains.

While these appliances are primarily in the interests of safety, they also promote efficiency and economy in locomotive operation.

Extension of Time for Applying

Safety Appliances to Freight Cars

Due to the war and other causes the application of safety appliances as required by federal laws and orders of the Interstate Commerce Commission had been delayed so that this important work could not possibly be completed within the time provided, although repeated extensions had been granted by the commission, the last one expiring on September 1, 1919.

Although it was suggested that an extension of time until January 1, 1921, be asked for, upon investigation made by the Railroad Administration, it was concluded that if vigorously pushed, the necessary work could be completed in much less time. Therefore, a request was made to the Interstate Commerce Commission to extend this period, and after a hearing at which the situation was presented to the commission, an extension was granted until March 1, 1920, to complete the work of equipping freight cars with safety appliances.

In order to force this work to a speedy conclusion instructions were issued that empty cars should not be accepted in interchange unless equipped with United States safety appliance standards.

This work is being closely followed so that there may be no possibility of a further extension being needed. With the progress now being made it will be entirely practicable to withhold from service all cars not equipped prior to March 1, 1920.

Vocational Training for Railroad Employees

The plans for vocational training for railroad employees in connection with the Federal Board for Vocational Education, which were referred to in our 1918 report, have been completed, and all railroads under federal control have been authorized to co-operate with the Federal Board of Vocational Education in the establishment of training schools for apprentices.

The railroads have also been granted authority to require the attendance of apprentices at these schools not less than 208 hours per year, and to incur necessary expense to fit up suitable classrooms in which such classes may be held.

The Railroad Administration is also co-operating with the Federal Board for Vocational Education in the matter of training disabled soldiers and sailors for such work in the railway service as their physical condition will permit them to perform. Under the arrangements made with the Federal Board for Vocational Education such men may be taken into railway shops and fitted for positions in mechan-

cal work under a plan for special training and be paid by the railroad for their services approximately the wages of an apprentice. An additional allowance is made to such men by the Federal Board for Vocational Education which will bring their pay somewhat higher than that of the average railway employee.

An understanding has also been reached with the employees' organizations that when these men have completed their course of training they may be employed as journeymen either in the shop where they have been trained or at any other point.

National Agreement

One of the inevitable results of federal operation of the railroads was the establishment of uniform rates of pay and working conditions for railway employees.

Under the arrangements in force when the railroads were taken over, each of the various railroad lines had its own shop rules or working agreement with the shopmen. This resulted in not only differences of rates, but in working conditions on different railroads which caused dissatisfaction and unrest among the employees and resulted in a movement of shopmen from road to road to take advantage of certain improved conditions. During the latter part of 1918 the shopmen requested consideration of a national agreement covering all railroads in federal operation, and such a proposition was submitted early in January, 1919. After consideration by various boards and committees the matter was turned over to the Mechanical Department on September 11 and the negotiations with the shopmen's committee were completed on September 17; the agreement approved and signed by the director general and the executive officers of the employees' organizations on September 20 to become effective on October 20, 1919.

This agreement is in line with the labor policy of the Railroad Administration, and is an important step forward in dealing with the labor situation. It has already been demonstrated that putting the agreement into effect in a harmonious and co-operative manner has materially improved the labor situation by allaying the unrest among the shop employees which prevailed and insuring them uniform treatment and proper consideration, and improvement has already been noted in the operation of shops, engine houses, and repair yards due to the more stable conditions brought about by this agreement.

An important fact developed in connection with the national agreement is that adequate provision was not being made to insure a future supply of mechanics by proper development of the apprenticeship system. At the ratio provided by the national agreement 64,159 apprentices could be employed, while a check of actual conditions shows that but 17,218 are employed. If we are to provide a future supply of skilled mechanics, more attention must be given to maintaining the full ratio of apprentices and giving them proper training.

Method of Handling Labor Disputes

During the year 163 labor disputes with shop crafts, some of them of an extremely difficult character, have been successfully handled by the Mechanical Department without serious inconvenience to transportation and without the necessity of referring them to the Division of Labor. We have uniformly followed the policy of absolutely fair treatment of employees, exerting every reasonable means to correct any abuses found to exist and impressing upon all concerned the necessity of handling grievances in an orderly manner and in accordance with existing agreements.

In the cases where this failed and the employees stopped work, they have been plainly told that grievances would not be considered after the employees had left the service; therefore the only way to obtain action was to return to work and present their grievances in an orderly manner.

The success of this policy has been proven by the fact that since the railroads have been in federal operation there has not been a single strike authorized by the executive officers of the various shopmen's organizations, and we have had their co-operation to the fullest extent to promote harmony and efficiency in shopwork.

One of the provisions of the national agreement is that "prior to the assertion of grievances as herein provided and while questions of grievances are pending, there will neither be a shutdown by the employer nor a suspension of work by the employees." This is an important concession by both sides which, if fairly observed, will go far toward eliminating disputes between the railroads and their employees.

Distribution of Labor

The distribution of shop labor to meet the demands in different sections of the country under varying business conditions has received careful attention.

We have considered that each skilled mechanic trained in railroad work represents a certain definite investment which is lost to the railroads if, on account of a temporary period of dull business, the man leaves railroad service to enter the employ of a private industry, because in many instances he never returns to railroad service. To avoid this loss of skilled workmen, as well as to provide employment during periods of dull business, arrangements have been made through the regional directors to provide employment within their region as far as practical for men who are laid off owing to dull business on the different railroads.

Where employment can not be provided within their own region, arrangements have been made to advise this office of all cases where there is a shortage or a surplus of skilled workmen when arrangements have been made for transfer. In this way we have been able to fill many vacancies as well as to provide employment for deserving workmen, and have thus retained to the Railroad Administration men who are skilled in mechanical work. In this we have had the close and sympathetic co-operation of the Railway Employees' Department of the American Federation of Labor, who furnish us with names of workmen seeking employment, and carefully follow up the cases where on their request workmen are sent to the different railroads to see that they accept the employment offered and for which they were furnished transportation.

It is believed that this work could be advantageously continued under private control and that it would be of decided benefit to both the railroad companies and to the workmen.

Activities of Field Men and the Saving

Effected by Their Work

The work of the field forces has consisted of making special investigations of improper conditions reported, checking up conditions in shops, engine houses and repair yards for the purpose of promoting efficiency and economy in operation and handling labor matters that had not reached the stage where they should be referred to the Division of Labor.

During the war the forces at practically all terminals had been built up to such an extent that they were out of proportion to the business handled. A check on the Erie Railroad in 1918 showed the need for a thorough investigation of shop and engine-house conditions on all railroads; therefore this work was extended and developed into a comprehensive system of reporting conditions of shop and engine-house operation monthly through the regional directors.

On account of the changed values due to increased labor and material costs a comparison on a money basis was worthless; therefore all comparisons of shop and engine-house operation were made on a man-hour basis.

To illustrate the improvement in conditions, a check of 2,921 engine houses in January, 1919, showed an average

of 30.58 man-hours per locomotive handled, while a check of the same engine houses in July, 1919, showed 25.77 man-hours per locomotive handled, or a decrease of 7,013,036 in the number of man-hours in handling approximately 54,000 locomotives. This represents a saving per month of \$4,263,-541, which is at the rate of approximately \$50,000,000 per annum.

Other matters which have been investigated by the field forces include disputes between officials and the employees, losses due to good material finding its way into the scrap bins, shop practices and the efficient use of machine tools, storage of material to see that it is properly protected, condition of shops and shop grounds, condition of roundhouses, turntables, cinder pits and other terminal facilities to see that they were sufficient and were efficiently operated, checking up car-repair forces and facilities, and in many instances reorganizing forces at division points or on an entire railroad, seeing that shops and repair yards were properly supplied with material and tools so that the work could proceed without delay.

Distribution of Power

Through reports made each week by each railroad the Mechanical Department is kept informed as to the exact condition on each road with respect to motive power. This information enables us to promptly transfer locomotives from one road or section of the country to other roads or points where an actual or anticipated shortage of power develops.

In order to meet any contingency that might arise and avoid such congestion as existed in the latter part of 1917 and the beginning of 1918, 150 new Mikado and Santa Fe type locomotives were held in reserve in emergency pools at Albany, Buffalo, Cleveland, Columbus and Potomac yards. These locomotives were under the control of the mechanical department and were held for assignment to any road where, due to either adverse weather conditions or to increased volume of business, the need for additional power became apparent. From time to time locomotives as needed to tide over temporary emergencies were taken from these reserve pools and despatched to the roads or points where they were most needed. This reserve supply of locomotives was maintained until it became clearly apparent from the condition of power as well as from the demands that they would no longer be needed, when the locomotives comprising the reserve were forwarded to the owning roads.

In addition to the locomotives in this reserve, 200 locomotives originally constructed for the Russian government are under the control of the administration to be used as a power reserve which can be promptly and easily transferred as the needs of the service demand.

The rapid development of the oil fields in the Southwest created an acute shortage of power on the roads traversing that territory, which was promptly met by the immediate transfer of power from the East, care being taken to provide locomotives to meet the clearances and restricted bridge loading in that territory.

In order to meet the increased demand for locomotives to move coal traffic a large number of locomotives were transferred to the coal-carrying roads in the Lake region during the early fall.

Approximately 750 locomotives have been constantly in service on other than owning lines. Their location has been changed from time to time to meet traffic conditions, which has enabled us to at all times furnish a sufficient supply of motive power to meet traffic conditions in the various sections of the country.

Since January 1, 1919, 2,307 locomotives have been given repairs in other than owning line shops.

A number of practices and methods established by the Railroad Administration should be permanently established and made standard because they are in the interest of economy, efficiency and uniformity.

Practices Which Should Be Continued

and Made Standard

Among these is the standard classification of repairs to locomotives and tenders, because it forms a reasonably accurate basis of comparison of the work of the different shops and the cost of locomotive maintenance. It also promotes efficiency by establishing a certain definite standard for locomotive repairs, thus preventing the practice which is altogether too common of shopping locomotives at frequent intervals and doing only a portion of the work needed in order to increase the mileage between class repairs.

The standards for repairs to freight cars provided for in these circulars were established to avoid delays to freight cars when on other lines waiting for material to make repairs in kind.

On December 31, 1917, 52 per cent of the total number of freight cars were on their home lines, and at the present time less than 25 per cent of cars are on home lines, and it is extremely doubtful if this percentage will ever be materially increased, because no matter how diligent the efforts to send cars to home lines the first period of heavy business scatters them to all parts of the country, and it is months before they can again be returned to their home lines. For this reason the standardization not only of construction, but of repair parts, is a necessity if we are to properly maintain equipment at a reasonable cost.

In the interest of efficiency and economy individual standards of freight-car construction or repairs should never again be permitted, as there is not a logical argument that can be advanced in opposition to the standardization of freight cars.

For the above reasons the standards for repairs established by circulars 7 and 8 should be continued subject to necessary revision from time to time, and should be added to wherever it may be found practical to do so.

The inspection of stationary boilers by the railroads should be continued under their own supervision, thus insuring the very best possible character of inspection, and that inspections will be made at times when it will cause the least inconvenience.

This method of inspection will also promote efficiency and bring about uniformity in the different requirements, so that railroads operating through several states will not have a number of different standards of inspection for their stationary boilers.

Complete records of the standardized equipment constructed by the Railroad Administration, including drawings and prints, cost of maintenance as developed by special investigations or otherwise, and all other matters covered by this report or handled by the Mechanical Department, are available in our files for use when needed.



The Cologne Railway Station

"Why Should the Public Sit In?"*

By William N. Vaile

Member of Congress from Colorado

MR. SPEAKER, my distinguished friend from Pennsylvania (Mr. Garland), whom we all love and admire, has made a most shocking disclosure to us concerning the iniquities of the railroad bill regarding the settlement of labor disputes.

He says: "You have in this bill a provision that the public shall sit in all cases, and the public shall be one of the board making the decision."

He contends that this is grossly unfair to organized labor.

Until I heard my distinguished friend I had a lingering impression that I was here to protect the public, that I was to be an advocate of the public. Now he tells me that this is all wrong. As a member of the House of Representatives, the body which is supposed to be the palladium of our liberties, close to the people and directly responsible to their will, he stands here and tells us that the bill is wrong, because it permits the public to "interfere between the men who work on the railroads and their employers."

The horror of this situation is increased, not diminished, by the fact that the only force behind such a decision is the force of public opinion. He reminds us that the decision, to which the consent of the public must be secured, "is not compulsory, but everyone knows that where a finding is made by a board of the character provided for, in which the railroads and the public agree, the majority of the board, it would be practically compulsory upon the men who work on the roads. There is no question about that. Everyone will agree to that."

Public opinion elected the gentleman from Pennsylvania to this House. He and I are answerable to it for our conduct here. But labor, according to the gentleman's argument, shall not be answerable to it. The gentleman from Alabama (Mr. Huddleston) says that the compulsion of public opinion will drive me out of Congress, but, of course, it is to have no binding effect upon labor.

And if Congress should be misguided enough to give some voice to the public, that voice must not be heard in agreement with the employers but only in agreement with the employees. The only award which should be binding, even by moral suasion, is the award which labor may agree to. If the public agrees to it, the public shows a proper submissive spirit. If the public does not agree to it, then the public is simply out of luck.

Now, Mr. Speaker, it is only human nature for all of us to consider principally our own individual interests. Capital does it and labor does it. For months the Washington hotels have swarmed with representatives of organized labor. They have been very active in visiting and interviewing Congressmen and they fill the galleries of the House whenever there is a discussion or a vote on matters affecting labor. It is just as legitimate for the railroad brotherhoods to keep a lobby here to advocate legislation which they desire, or to oppose legislation which they deem unfavorable to their best interests, as it is for the United States Chamber of Commerce to maintain its offices and agents here. It is perfectly proper for either a railroad attorney or a railroad brotherhood delegate to appear before congressional committees or to visit individual Congressmen for the purpose of arguing the cause of his clients.

But the great brotherhood of the general public does not maintain any lobby at Washington. I am, however, a member of it, and while I remain in Congress I shall represent it to the extent of my ability upon this floor. I am in favor of this bill, but not for the reason that it is opposed by organized labor. I hope the time will never come when my judgment

shall be so obscured as to be in favor of any bill merely because it is opposed by somebody else. When I vote for a bill, as I vote for this one, it is because I am convinced of its merits. If Mr. Gompers were in favor of it I would welcome his support, but it would not increase my advocacy of this bill any more than his opposition shall drive me away.

Now, we are all members of the brotherhood of the general public, even though we may also be members of some other brotherhoods, and I believe that this brotherhood of the general public has been somewhat neglected in the past in controversies between labor and capital. The time is coming—in fact, the time has arrived—when this old good-natured, long-suffering brotherhood of the general public, which has been so much of an easy mark in the past, is going to be heard. When, for example, a railroad strike is threatened which would keep the coal from our factories, and the milk from our babies in the cities, and bring some measure of inconvenience and suffering to every man, woman, and child in the United States, and people of the United States are going henceforth to take a hand in the settlement of that dispute.

Ah, my friends of the railroad brotherhoods, it ought to be easy for you to see that your cause is so just that it need not fear the voice of public opinion. I concede that the Brotherhood of Railway Conductors and the Brotherhood of Locomotive Engineers, and the Brotherhood of Railway Trainmen, and the International Brotherhood of Boiler Makers, and any other organization or group of employees should be represented in the settlement of a dispute between them and their employers, and this bill provides that they shall be. But I demand that the brotherhood of the general public should also "sit in." And it seems to me not unreasonable to insist that the decision which is made should be equitable enough and fair enough to be concurred in by at least one out of the public's three representatives.

That is all that this bill provides. There is no interference in it with "free speech" or "free assembly" or "collective bargaining." There is no attachment of union funds or of any property of a union or of any of its members. There is no judgment, civil or criminal, against a union or any union man. There is no penalty whatever for going on strike—that is, no penalty except the condemnation of public opinion. That is absolutely all there is to the so-called "antistrike" provisions of this bill.

A strike may be the only means of obtaining a worthy end. The same thing may be said of war. A war causes great suffering and loss, not only to the combatants but to non-combatants. The same thing is true of a strike. He who proposes either a war or a strike may have overwhelmingly the merits of the case. He also has the burden of proof. You should expect to be able to prove the justice of your strike, but if it is just you need not fear public opinion. If it is unjust you ought to fear it.

THE MOST DANGEROUS STRIKE.—At present the most dangerous strike threatening our railroads is the strike of the investing public, and it cannot and will not be broken until encouragement is afforded it in the shape of substantial dividends.—*The Street, New York.*

MUST GET ON THEIR FEET.—The pressing necessity is to straighten out the so-called railroad tangle as soon as possible, in a way to permit the transportation companies again to get on their feet and meet the needs of public service. Not only has new construction been at a comparative standstill, but equipment has sadly deteriorated and the service rendered has been a source of constant complaint and criticism. And this condition will continue to grow worse until a wise and liberal policy toward the transportation companies is adopted and becomes effective, giving the roads a chance to get their share of general prosperity and thus encouraging them to resume new construction and put their equipment in shape to handle the rapidly increasing volume of traffic.—*Oshkosh (Wis.) Northwestern.*

*From an Extension of Remarks on the Railroad Bill, in the Congressional Record of February 28, 1920

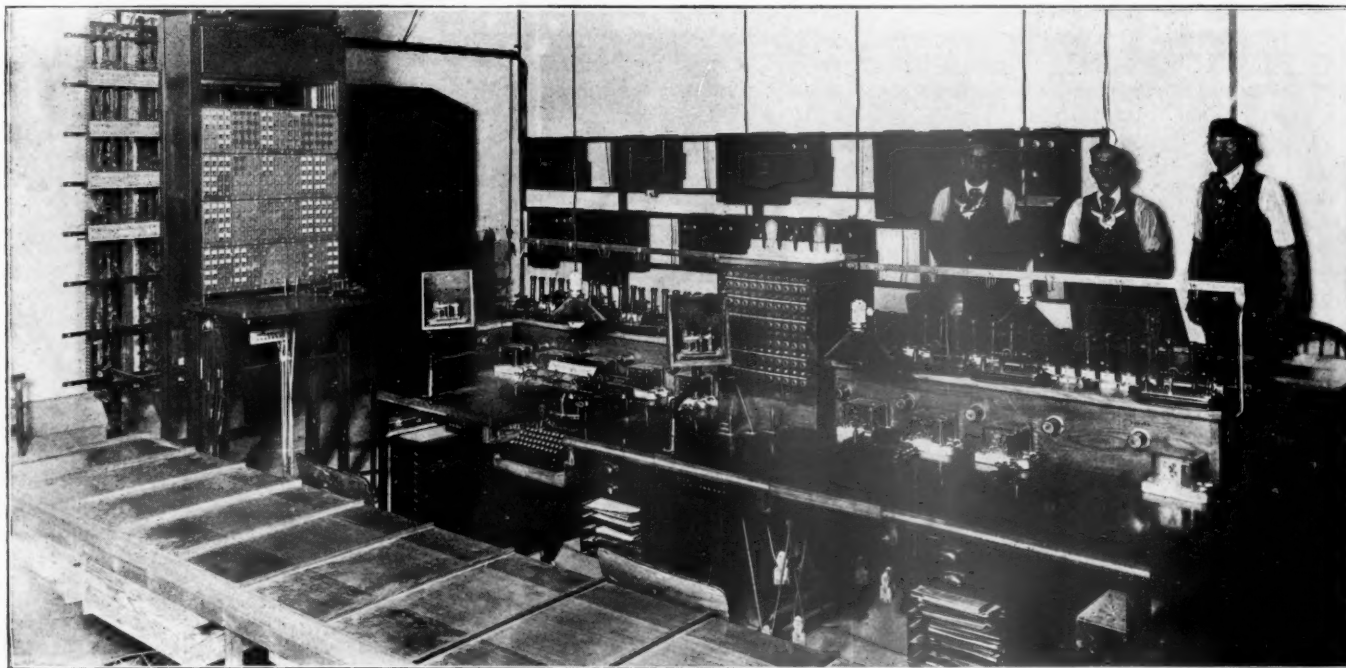
New Telegraph Office in Indianapolis Union Station

Modern Plant Equipment Installed to Increase Efficiency in Handling Business of Eight Roads

A NEW TELEGRAPH OFFICE was recently installed in the new Union station, which is being built at Indianapolis, Ind. The apparatus installed consists of modern up-to-date equipment, making a complete and efficient working unit. From one to three men are employed on each trick. The operators in this office handle train orders and railroad message traffic for the Indianapolis Union; the Pittsburgh, Cincinnati, Chicago & St. Louis; the Cleveland, Cincinnati, Chicago & St. Louis; the Cincinnati, Indianapolis & Western; the Chicago, Indianapolis & Louisville; the Illinois Central and the Lake Erie & Western. Some idea of the number of messages coming into this office may be gained from the fact that wires from six divisions of the

graph relays. The distributing frame and the test board are located at the south end of the room, while the telephone selectors are located on the west wall. On each side of the quartette operating table and immediately back of the operators is located a train order table with the top divided and marked with the names of the various roads. These tables are provided so that all orders or clearances which have not been delivered are in plain sight, eliminating the chance of their being overlooked.

A total of 22 telephone and 18 telegraph circuits were transferred from the old to the new location. Of these, the Big Four has 12 telephone and four telegraph circuits; the Pennsylvania has 5 telephone and 6 telegraph circuits; the



General View of Office, Showing Operator's Table, Distributing Frame, Test Board and Selectors

Pennsylvania Lines and from four divisions of the Big Four enter the office in addition to those of the other roads mentioned above.

The Location of the Office

The office is located in a room 49 ft. long by 24 ft. 5 in. wide, underneath the train shed tracks, making it easy of access for the conductors and trainmen entering the Union station. The room is longest north and south. A portion 23 ft. 6 in. long on the south end is reserved for the telegraph office and equipment and the remainder is for the use of conductors and trainmen, a large counter separating the two parts of the room. The location of the office is such that it is necessary to make provision for artificial light and ventilation.

The Office Equipment

In the operating room is located the quartette operating table, in the center of which is the jack box with the pilot signals on top. The telegraph selectors are mounted along the center and immediately above them are located the line tele-

Lake Erie & Western 1 telephone and 2 telegraph circuits; the Monon 2 telegraph circuits; the Illinois Central 1 telephone and 1 telegraph circuit; the Indianapolis Union 2 telephone circuits and the C. I. & W. 1 telephone and 3 telegraph circuits.

The wires for the new "UN" telegraph office were brought from the terminal frames in the underground terminal room through a tunnel to a point directly beneath the distributing frame in the telegraph office, in a 62 pair cable. All telegraph wires loop from the underground terminal room board to the distributing frame in the office and back to the underground terminal room, while all telephone wires are bridged across the circuits entering the underground terminal room. The conduit system for the adjacent track elevation work terminates in this room and circuits are carried from there to the Western Union uptown office.

The distributing frame in the telegraph office consists of a double-sided frame of 5 units accommodating 480 cable strands and 200 protectors on the vertical side and 480 switch board terminals on the horizontal side. The incoming cable is terminated on the vertical units numbered 1 to 100, the

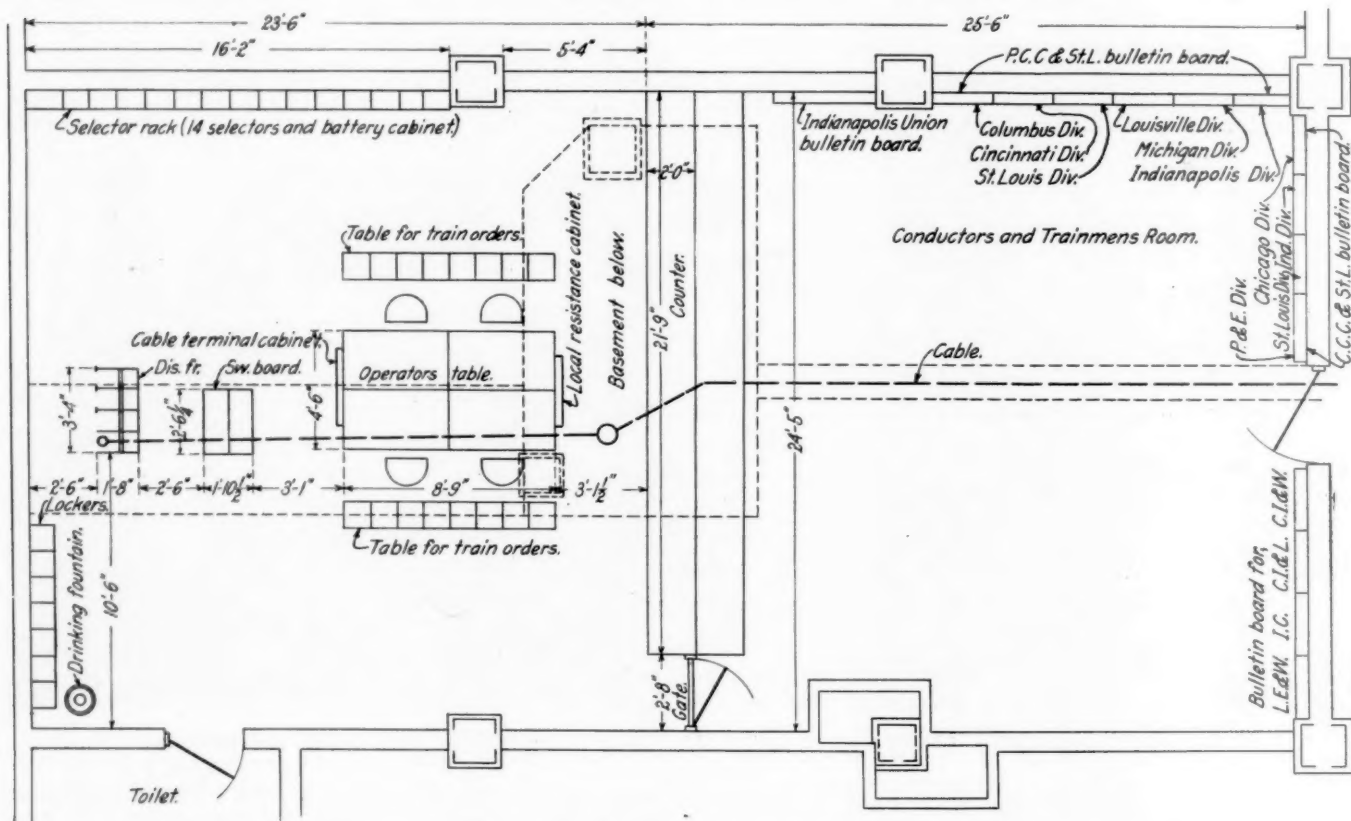
conductor assignment conforming to a list as previously prepared.

Space was provided on the quartette centralization table for 40 telephone and 20 telegraph line jacks. Each jack and filler button is provided with two line conductors. The telephone conductors are carried in a 40-pair office cable which is carried under the floor to the distributing frame. Each space for a telephone jack has an associated lamp space for signaling. The lamps are connected to the corresponding selectors through the distributing frame and, to accommodate the lamp signals, a second 40-pair lead office cable was installed. For the accommodation of miscellaneous wires such as buzzers, circuits, battery leads to master sets, etc., a 20-pair lead office cable was provided between the terminal cabinet on the telegraph table and the distributing frames.

To provide testing facilities, a reduced section of standard Western Union pin jack switchboard was provided; all telephone circuits were grouped on the left of the board and all telegraph circuits on the right. Different colored designa-

causes the pilot lamp to light, are in series with this circuit relay and are lighted when this relay is picked up by the 12-ohm relay mentioned above. The pilot light for the telephone is red and is mounted on top of the jack board on the operating table. When the operator plugs in to answer a call, the circuit is opened and is restored to normal, thus putting out the red pilot light and the two lights on the jack board. To indicate to the operator when any failure of the power supply occurs, a 16-ohm relay was bridged across the office side of the fuses, protecting the power circuit which is normally energized. Should a fuse be blown, this circuit is broken and a circuit is established through an indicating fuse, a 2000-ohm resistance unit, the back contact of this relay and a 50-mile fuse-indicating lamp, causing this to light up. The fuse-indicating lamp is green and is also mounted on top of the jack box with the pilot equipment.

The telegraph circuits were wired with a 100-ohm Morse line relay so arranged that its armature operates the Gill selector, and the selector contact closes another relay which



Floor Plan of Office Showing Location of Equipment, Bulletin Boards and General Arrangement

tion cards were used for the different railroads. One Morse testing set circuit and one telephone test were installed on the switchboard. Each jack was provided with a designation cord conforming to a typical one. In addition the following color scheme was used to designate the various railroads: Big Four, white; Pennsylvania, red; C. I. & W., blue; L. E. & W., yellow; I. U., green; Monon, salmon; I. C., slate; I. V. brown.

Telephone and Telegraph Circuits

The telephone circuits were wired up with a 12-ohm relay connected in multiple with the selector bell which picks up when the bell rings. A contact on this relay completes the circuit for another relay which is in turn kept energized through a front contact on it so that it remains closed when the contact of the 12-ohm relay opens a little later. The two line signal lamps in the jack board and the pilot relay, which

then remains closed through its front contact as in the case of the telephone circuit. This operates the signal lamps and the pilot relay, the lamps in this case being white. The closing of the selector contact also causes the operation of the answer back. This is so arranged that the upper contacts close, shunting the relay contact before the line is opened an instant later by the lower contact. The opening of these line contacts causes a signal to be sent back over the line telling the calling operator that the call has gone in. As in the case of the telephone when the operator plugs his master set in series with the line, the lower contacts open, breaking the circuit and restoring it to normal. Two magnetic wall telephones were installed in the conductors and trainmen's office and wired to plugs in the front of the jack box so that calls could be made on any circuit.

The cable terminal box and the local resistance cabinet are located at each end of the operator's table, these boxes

being bolted to the angles at the ends of the tables. The cable from the distributing frame is brought to the cable terminal box and determined with the conductors bearing the same number they had in the distributing frame. The incoming power is brought to the local resistance cabinet in metal conduit and the live side is terminated on six fuse blocks fused with one ampere fuses. Two fuse blocks are used to feed the telephone locals and two additional fuse blocks are used to feed the telegraph locals. The leads from each fuse block for the telephone locals first pass through a 250-ohm resistance unit, then a 16-ohm signal relay to the protective resistances in the receptacles. The circuits going through the contacts of these relays pass through another fuse block and through 500-ohm resistances which close the circuit of the pilot equipment. Across the office side of the telephone fuse blocks, the telephone fuse indicating relays are bridged, protected by 1,000-ohm resistance units. From the back contacts of these relays, the fuse-indicating lamp is bridged to ground while the armatures are connected through a 250-ohm resistance to the 110-volt lead. The telegraph local equipment is wired in a similar manner except that the limiting resistances are mounted on top of the table near the Morse line relays located above the telegraph selectors. The four master telegraph sets are supplied with power from a local generator through a fuse in the local resistance cabinet. The telegraph cords are shortened to such a length as to prevent their being used in telephone jack.

The preparation of the plans and the installation were carried out under the jurisdiction of C. S. Rhoads, superintendent of telegraph of the Big Four. The installation was made under the direct supervision of J. G. Gilgrist, assistant superintendent of telegraph, and John L. Niesse, telegraph and telephone engineer of the Big Four. R. D. Meredith, chief installer of the Big Four handled the installation work.

The Liquidation Staff of the Railroad Administration

THE STAFF RETAINED by the Railroad Administration after the return of the railroads on March 1 to liquidate its affairs includes approximately 1,223 officers and employees, according to a statement issued by Director General Hines to indicate more definitely than was possible in his annual report the steps taken and in contemplation to conclude the matters arising out of government operation of the railroads. Because so many people continued after March 1 to take to the Railroad Administration requests for information, appeals for the expedition of shipments, complaints, etc., such as they had been used to take up with its organization, Mr. Hines also took occasion to state that he is no longer in charge of railroad operation. Many Congressmen particularly, who had found the Railroad Administration a convenient place to refer communications from their constituents regarding railroad service, failed to note the transition in management, but the Railroad Administration has continued to refer them to the proper office.

"As far as I have been able to ascertain," Mr. Hines says, "the actual return of the railroads to their corporate owners at 12:01 a. m. March 1, and the taking over of the properties by their corporate owners was accomplished without any dislocation whatever of the transportation systems which had been under federal control. Arrangements having been made in advance both by the government and by the corporations, no public inconvenience resulted anywhere.

"In accordance with the transportation act and with the President's proclamation, the director general ceased to have any control over the operation of the railroads on March 1, and coincidentally the regional and district offices and terminal organizations of the Railroad Administration and the

divisions of operation, traffic, public service, inland waterways and labor ceased to function as such. Following out notices which have been given in advance, approximately 891 officers and employees of the regional and terminal district organizations ended their employment with the Railroad Administration on March 1, and at the same time approximately 529 officers and employees of the central administration ended their connection with the Railroad Administration, making a total of 1,420 officers and employees who were taken off the Government payroll on March 1. A large proportion of the officers and employees released have resumed employment with railroads.

"In addition to the 1,420 officers and employees of the regional and central offices of the Railroad Administration released on March 1, a considerable additional number will be released in the near future, it having been necessary to retain some employees of the regional offices and of the central divisions which have been abolished for a comparatively brief time to complete the records of federal control and wind up the work of those offices.

"Under the proclamations of the President dated February 26, in accordance with the terms of the transportation act, the director general was authorized to liquidate the affairs of the government control of railroads. The annual gross revenues of the railroads under government control in 1919 were in excess of \$5,000,000,000 and under government control as under private control the railroad operation accounts involving such large amounts are not available day by day, but are always from 30 to 90 days behind. For 26 months, properties, privately owned, including approximately 240,000 miles of main line of railroad which, with its equipment are variously estimated as being worth from \$15,000,000,000 to \$20,000,000,000, have been under the control of the government on a rental basis of about \$917,000,000 per annum. In addition to the actual operation of these properties during federal control, the Railroad Administration has been engaged in agreeing upon the standard form of contract to be made with each railroad company, the adoption of that form to the particular condition of each company, in agreeing upon the rental to be paid each company, consideration of the materials and supplies received and of the corresponding amounts to be returned at the end of federal control, determination of the extent to which the corporations would be charged for capital expenditures made for additions and betterments and equipment and manner in which payment there for should be made, determination of the mutual rights of the parties as to over maintenance or under maintenance of the properties and consideration of many other problems which considered together have presented a task of very considerable proportions.

"The final adjustment of questions growing out of these large transactions will call for attention for a considerable period in the future. There will be involved a large number of claims of the railroad corporations against the Government and of the government against railroad corporations relating to capital expenditures made during the federal control, maintenance questions and other problems. Numerous financial, accounting and legal questions must be disposed of and in addition the government will have to supervise payments of claims from shippers on account of loss and damage and overcharge claims and also personal injury claims arising during the period of federal control, such claims of course being claims against the government. These activities will necessitate a very large number of detailed inquiries, calling for investigation and adjustment of railroad records throughout the country and for the present will require a very substantial force.

"It will be necessary for the director general's office, the divisions of finance, liquidation claims, law and accounting to continue to function for the protection of the interests of

the government in the very large sums involved in the liquidation of the affairs of government control of railroads. The division of purchases will also continue to function temporarily in connection with inventories of materials and supplies. Numerous labor questions remain for final winding up and for the time being will require a considerable force.

"As of March 1 and after eliminating the 1,420 officers and employees mentioned the central administration included approximately 1,072 officers and employees and the regional offices of the Railroad Administration included approximately 151 officers and employees or a total of approximately 1,223 officers and employees. The employees who have been retained in the regional offices represent primarily employees who have been retained as field agents and office clerks of the central organization of the Railroad Administration to assist in the liquidation of the claims mentioned above."

Frank McManamy, manager of the Department of Equipment of the Division of Liquidation Claims, has issued a circular announcing the following appointments in the Department of Equipment:

George N. DeGuire, heretofore general supervisor of Equipment of the Division of Operation, is appointed assistant manager; F. P. Pfahler, chief mechanical engineer of the Division of Operation, is appointed chief mechanical engineer; George E. Dougherty is appointed chief examiner.

E. M. Durham, Jr., newly appointed manager of the Department of Ways and Structures of the Division of Liquidation Claims, has appointed regional engineers for each of the regions maintained by the Railroad Administration, as follows: C. E. Knickerbocker, senior assistant to the engineering assistant of the Eastern region, has been appointed regional engineer for the Eastern region, with headquarters at the Grand Central Terminal, New York City. David Meriwether, Jr., assistant to the chief engineer of construction of the Southern Railway, has been appointed regional engineer for the Allegheny region, with headquarters in the Broad Street Station, Philadelphia. H. M. Rodenbaugh, engineering assistant to the Southern regional director, has been appointed regional engineer for the Southern and Pocahontas regions, with headquarters in the Hurley-Wright building, Washington, D. C. Horace Stringfellow, district engineer of construction of the Southern Railway, has been appointed regional engineer for the Southwestern region, with headquarters in the Railway Exchange building, St. Louis. F. H. McGuigan, Jr., assistant engineer in the office of the engineering assistant of the Central Western region, has been appointed acting regional engineer for that region, with headquarters at 547 West Jackson boulevard, Chicago. C. K. Smith, acting engineering assistant for the Southwestern region, has been appointed acting regional engineer for that region, with headquarters at 547 West Jackson Boulevard, Chicago.

THE NEW RAILROAD PERSONNEL.—The men who are to handle the railroads after they are released from government operation have specialized in this business, many of them, all their lives. They will know how to bring about the most economical operation of these properties, and they are entitled to the support of the public while they are doing their best to bring about a readjustment.—*Macon (Ga.) News.*

INCREASED RATES OR HIGHER TAXES.—If the roads stayed in the hands of the government the colossal deficits they are now piling up would burst even the United States Treasury unless Congress resorted to new taxation. This country is done with higher taxes. So it must be higher traffic rates. Government operation or private operation, there is no getting away from the higher rates if the national transportation system is to be saved.—*New York Sun.*

Demurrage Rates Increased in England

LONDON, England.

ONE OF THE PROBLEMS of the Rate Advisory Committee to the Ministry of Transport of Great Britain was to increase the demurrage rates to such an extent that it would be unprofitable for shippers and consignees to use cars for storage purposes. Under the existing rates the use of cars for storage has become an abuse, with the result that there has been a severe shortage.

The committee has taken the existing schedules and increased them, as shown in the accompanying tables. In view of the effect of the eight-hour day, which is now pretty generally in vogue throughout Great Britain, consignees have found it more difficult to unload and clear their cars, and for that reason the advisory committee has recommended that the free time remain as it stands, which in England and Wales is as follows:

Wagons supplied empty for loading:	
At stations	One day ¹
At private sidings, docks, wharves, etc.	One day ¹
Loaded wagons after conveyance:	
At stations	Two days ²
At private sidings and docks	Two days ²
At the port (shipment traffic)	Three days ²
Same, if reloaded	Three days ²
Refrigerator and insulated vans	Treated the same as wagons

¹Exclusive of the day upon which the wagons are placed at the trader's disposal.

²Exclusive of the day of receipt by the trader of notice of arrival.

³Exclusive of the day of arrival.

In Scotland the free time allowed is as follows:

Wagons supplied empty for loading with merchandise at stations, private sidings, docks, etc.	One day ^a
Wagons for loading with coal, coke or patent fuel at private sidings	Two days ^a
Loaded wagons after conveyance—	
At stations:	
Traffic other than coal, coke or patent fuel	Two days ^b
Coal, coke or patent fuel	Three days ^b
At private sidings, docks, etc.:	
Traffic other than coal, coke or patent fuel	Two days ^a
Same, if reloaded	Three days ^a
Coal, coke or patent fuel	Three days ^a
Same, if reloaded	Four days ^a
At ports (shipment traffic only):	
Traffic other than coal, coke or patent fuel	Four days ^c
Coal, coke or patent fuel	Four days ^c

^aExclusive of the day on which wagons are placed at the trader's disposal.

^bExclusive of the day of receipt by the trader of notice of arrival.

^cExclusive of the day of arrival.

The demurrage charge, after free time, was formerly at a low rate per day, with no increase for a prolonged holding of the car. The committee now, as shown in the table below, has made the demurrage rates in most cases 100 per cent higher for each of the first two days charged for and 200 per cent higher for each subsequent day.

Charges made for the "internal use" for freight cars and tarpaulins in works, private sidings and docks have been the same as those charged for demurrage, but no free period is allowed.

COMPARISON OF OLD DEMURRAGE RATES AND THE NEW

	Old rates		New rates (for both England and Scotland)	
	Scotland	England and Wales	For each of first two days	For each subsequent days
Ordinary freight cars	3d.	1s. 6d.	3s.	5s.
Tarpaulins	3d.	3d.	6d.	1s.
Freight cars not exceeding 16 tons capacity	1s. 6d.	2s.	4s.	6s.
Freight cars from 16 tons to 20 tons capacity	2s. 0d.	3s.	6s.	9s.
Freight cars from 20 tons to 30 tons capacity	3s.	5s.	10s.	15s.
Freight cars above 30 tons capacity	5s.	5s.	10s.	15s.
Specially constructed freight cars:				
Above 15 and under 20 tons capacity		3s.	6s.	9s.
20 tons and under 30 tons capacity		6s.	12s.	18s.
30 tons and above		10s.	20s.	30s.
Refrigerator and insulated cars		6s.	12s.	18s.

Note: Shillings (s) = 24 cents. Pence (d) = 2 cents.

*Tarpaulins are largely used in England to protect loads in open top cars from the weather.

134 Roads Earned Less Than Standard Return

Twenty-nine Helped Make Up Deficiency of Others—Must Elect Whether to Accept Six Months' Guaranty

WASHINGTON, D. C.

BEFORE MARCH 15 it is incumbent upon the railroad companies to decide whether they can earn more than the amount of the standard return which has been guaranteed by the government during federal control as rental for the use of the properties, or whether they shall accept a continuance of the guaranty for six months from March 1 as provided in the new transportation act. Roads which desire the guaranty are required to file with the Interstate Commerce Commission by that time a written acceptance of the provisions of Section 209 of the act, which stipulate among other things that if a railroad earns more than the guaranty it shall turn the excess into the treasury to be used in making up the deficiencies of roads that fail to earn the amount of the guaranty for the six months' period. A road may, however, retain enough to pay necessary fixed charges. If a railroad is confident it can earn more than the amount of the standard return for the next six months, and there are several roads that have done better than that during the past two years, it naturally will not file an acceptance but if it is doubtful it may want to do so in order to play safe and because the law provides for advances of part of the amount of the guaranty to meet fixed charges and operating expenses.

For the calendar year 1919, according to the condensed income account compiled by the Operating Statistics Section of the Railroad Administration, while the Class I roads under federal operation earned only 57.8 per cent of the standard return, as compared with 76.8 per cent in 1918, there were 29 roads that earned 100 per cent or more of the amount of their guaranty, while 134 roads earned less. In 1918 there were 54 roads that earned 100 per cent or more of their guaranty, while 109 roads earned less. The roads that earned more than the guaranty in 1919 were: Ann Arbor, 109.2 per cent; Detroit & Toledo Shore Line, 200.8; Grand Trunk Western Lines, 214.6; Michigan Central, 210.7;—Monongahela, 178.6; New York, Chicago & St. Louis, 182.5; Pere Marquette, 179.2; Cincinnati Northern, 155.41; Cleveland, Cincinnati, Chicago & St. Louis, 130.6; Atlanta & West Point, 213.3; Georgia, 154.5; Louisville, Henderson & St. Louis, 145.9; Richmond, Fredericksburg & Potomac, 243.1; Vicksburg, Shreveport & Pacific, 134.5; Washington Southern, 401.3; Western of Alabama, 197.5; Yazoo & Mississippi Valley, 115.9; Duluth & Iron Range, 130.9; Duluth, Missabe & Northern, 222.6; Elgin, Joliet & Eastern, 116.1; Atchison, Topeka & Santa Fe, 100.5; Fort Worth & Denver City, 154; Oregon Short Line, 105.4; Union Pacific, 138.9; Western Pacific, 188.2; Fort Worth & Rio Grande, 1576.8; Gulf Coast Lines, 111.4; St. Louis-San Francisco, 107.3; Sunset Lines, 108.3.

A table comparing the net operating income with the standard return for 1918 was published in the *Railway Age* of March 31, 1919, page 771. It showed 65 roads that earned more than the guaranty and 119 that earned less. The compilation for 1919, with comparative figures for 1918, issued by the Operating Statistics Section, from which the accompanying table is taken, covers only 163 roads.

According to this compilation the 29 companies that earned more than 100 per cent of their guaranty in 1919 contributed \$46,072,389 toward making up the deficiency in meeting the standard return of the other roads, although the net result was a deficiency for the 163 roads as a whole of \$377,037,000, as compared with the standard return of \$892,855,395.

A total of 46 roads in 1919 had operating deficits, as compared with 28 that had deficits in 1918. None of the regions of the Railroad Administration as a whole earned the standard return for the region as a whole. The highest percentage was that of the Central Western region, which earned 88.6 per cent of the guaranty. The Allegheny region earned only 19.4 per cent. In 1918 the Pocahontas and Southern regions earned more than 100 per cent.

An examination of the accompanying table, taken from the compilation of the Operating Statistics Section, indicates some interesting facts regarding the effect on the net operating income of the changes in the character or channels of traffic that were brought about during the two years of federal control as compared with the conditions of the test period on which the standard return is based. In some cases the fact that a road earned more or less than its standard return is due to diversion of traffic made by the Railroad Administration, in others to an abnormal increase or decrease in the volume of traffic in the territory served by a road, brought about by conditions resulting from the war, and in others it is due to changes in the proportion of expenses, particularly in the maintenance accounts. Some roads also were affected very differently from others by the changes in 1919 as compared with 1918.

For the 163 roads included in the table the operating revenues increased in 1919 as compared with 1918 by \$259,591,792, or 5.3 per cent; the operating expenses increased \$397,377,135, or 10.1 per cent; the net operating revenue decreased \$137,785,343, and the net federal income decreased \$169,461,738. The total operating ratio was 85, as compared with 81.4 in 1918. For maintenance of way and structures it was 15, as compared with 13.3 in 1918, for maintenance of equipment it was 23.8, as compared with 22.5; for transportation it was 42.1, as compared with 41.6. The ratio of maintenance of way and structures to operating revenues, however, ranged as high as 49 per cent for one road, as compared with 23.3, the year before, and the maintenance of equipment ratio was as high as 53.7 for one road as compared with 37.3 the year before.

The Erie, whose standard return is \$15,729,068, earned only 6.6 per cent of that amount in 1919 and had a deficit in 1918. The Baltimore & Ohio earned only 18.1 per cent of its guaranty in 1919 as compared with 25.7 in 1918; the Pennsylvania lines east only 15.6 per cent as compared with 38.8 in 1918; the Illinois Central only 27.5 as compared with 79.7 in 1918; the Southern, that earned 158.2 per cent in 1918, earned only 57.1 per cent of its guaranty in 1919; the Chicago, Milwaukee & St. Paul earned only 11.6 per cent in 1919 and 14.1 in 1918. The largest percentage of the standard return earned by any road was 1576 for the Fort Worth & Rio Grande. This road of 235 miles, has a standard return of \$1,301. In 1918 it had a deficit of \$61,994, but in 1919 its revenues increased 44.7 per cent, while its expenses increased only 38.4 per cent and its federal income was \$20,514.

The Interstate Commerce Commission on March 4 issued a notice to the carriers suggesting a form in which they shall file acceptances of the provisions of the guaranty section of the law to be signed by the president or other appropriate executive of the company and also the form of a resolution to be adopted by the board of directors authorizing the president to execute the document. The notice says the commis-

sion in receiving such acceptances does not pass upon the authenticity or authorization of the document as a valid act

by the corporation but instructions are given for the proper certification of the statement of acceptance.

NET FEDERAL INCOME COMPARED WITH STANDARD RETURN. CLASS I RAILROADS UNDER FEDERAL OPERATION

TWELVE MONTHS ENDED DECEMBER 31, 1919, COMPARED WITH SAME PERIOD OF PREVIOUS YEAR

Railroad	Net federal income (See notes)			Standard return (See notes) For entire year	Per cent net federal income to standard return for entire year (See notes)	
	This year	Last year	Increase or decrease		This year	Last year
Total, New England District.....	\$9,775,418	\$10,227,504	d \$452,086	\$38,901,093	25.1	26.3
Total, Central District.....	103,611,503	109,099,456	d 5,487,953	142,739,083	72.6	76.4
Total, Ohio-Indiana District.....	15,909,487	22,820,109	d 6,910,622	21,809,702	72.9	104.6
Total, Eastern Region.....	129,296,408	142,147,069	d 12,850,661	203,449,878	63.6	69.9
Total, Allegheny Region.....	28,772,799	63,634,490	d 34,861,691	148,254,966	19.4	42.9
Total, Pocahontas Region.....	20,212,246	37,818,305	d 17,606,059	37,108,728	54.5	101.9
Total, Southern Region.....	53,937,173	110,740,325	d 56,803,152	102,020,396	52.9	108.5
Total, Northwestern Region.....	78,422,402	92,540,188	d 14,117,786	148,454,277	52.8	62.3
Total, Central Western Region.....	170,121,574	182,426,498	d 12,304,924	191,978,682	86.6	95.0
Total, Southwestern Region.....	35,055,171	55,972,636	d 20,917,465	61,588,468	56.9	90.9
Grand total, all regions.....	515,817,773	685,279,511	d 169,461,738	892,855,395	57.8	76.8
EASTERN REGION						
New England District						
Bangor & Aroostook.....	107,731	607,177	d 499,446	1,555,775	6.9	39.0
Boston & Albany.....	1,951,199	2,232,916	d 281,717	4,063,131	48.0	55.0
Boston & Maine.....	3,577,108	1,895,400	1,681,708	9,832,491	36.4	19.3
Central New England.....	D 163,138	57,768	d 220,906	1,468,124	b	3.9
Central Vermont.....	D 871,205	D 689,469	d 181,736	828,625	b	b
Grand Trunk in New England.....	D 766,514	D 1,105,677	339,163	D 4,271	b c	b c
Maine Central.....	D 1,212,203	D 581,781	d 630,422	2,955,697	b	b
New York, New Haven & Hartford.....	6,929,382	7,769,005	d 839,623	17,173,367	40.3	45.2
Rutland.....	223,058	42,165	180,893	1,023,883	21.8	4.1
Total, New England District.....	9,775,418	10,227,504	d 452,086	38,901,093	25.1	26.3
Central District						
Ann Arbor.....	575,137	175,013	400,124	526,883	109.2	33.2
Buffalo, Rochester & Pittsburgh.....	D 1,075,870	1,086,378	d 2,162,248	3,276,410	b	33.2
Delaware & Hudson.....	2,054,575	2,451,695	d 397,120	7,409,600	27.7	32.1
Delaware, Lackawanna & Western.....	11,809,921	15,973,193	d 4,163,272	15,749,477	75.0	101.4
Detroit & Mackinac.....	D 89,596	34,304	d 123,900	310,664	b	11.0
Detroit & Toledo Shore Line.....	467,852	449,046	449,046	456,512	200.8	102.5
Erie (Inc. Chicago & Erie).....	1,036,370	D 2,246,652	3,283,022	15,729,068	6.6	b
Grand Trunk Western Lines.....	2,309,600	203,930	2,105,670	1,076,017	214.6	19.0
Lehigh & Hudson River.....	395,718	363,664	32,054	519,371	76.2	70.0
Lehigh & New England.....	927,354	1,197,761	d 270,407	1,135,761	81.7	105.5
Lehigh Valley.....	3,776,291	6,821,131	d 3,044,840	11,318,714	33.4	60.3
Michigan Central.....	16,969,157	13,692,236	3,276,921	8,052,127	210.7	170.0
Monongahela.....	1,041,104	650,615	390,489	583,086	178.6	111.6
New York Central.....	48,201,701	46,035,695	2,166,006	51,739,500	93.2	87.5
New York, Chicago & St. Louis.....	4,048,631	3,893,167	155,464	2,218,857	182.5	175.5
New York, Ontario & Western.....	795,047	576,100	218,947	2,103,589	37.8	27.4
New York, Susquehanna & Western (Inc. W. H. & E.).....	D 185,671	524,551	d 710,222	999,942	b	52.8
Pere Marquette.....	6,717,880	3,851,485	2,866,395	3,748,196	179.2	102.8
Pittsburgh & Lake Erie.....	3,501,821	9,880,183	d 6,378,362	8,980,219	39.0	110.0
Pittsburgh & Shawmut.....	D 177,302	130,435	d 307,737	613,261	b	21.3
Pittsburgh & West Virginia.....	D 648,908	D 319,631	d 329,277	237,010	b	b
Ulster & Delaware.....	D 152,754	D 57,775	d 94,979	128,000	b	b
Wabash.....	864,445	3,714,172	d 2,849,727	5,826,810	14.8	63.7
Total, Central District.....	103,611,503	109,099,456	d 5,487,953	142,739,083	72.6	76.4
Ohio-Indiana District						
Chicago, Indianapolis & Louisville.....	415,931	747,799	d 331,868	1,620,259	25.7	46.2
Cincinnati, Indianapolis & Western.....	D 590,797	D 158,387	d 432,410	422,213	b	b
Cincinnati Northern.....	493,591	257,750	235,841	317,628	155.4	81.1
Cleveland, Cincinnati, Chicago & St. Louis.....	12,981,513	14,751,312	d 1,769,799	9,938,597	130.6	148.4
Detroit, Toledo & Ironton.....	D 710,543	D 717,087	6,542	225,895	b	b
Hocking Valley.....	1,444,287	2,614,670	d 1,170,383	2,637,167	54.8	99.1
Kanawha & Michigan.....	171,233	1,658,827	d 1,487,594	1,295,141	13.2	128.1
Lake Erie & Western.....	D 39,034	397,292	d 436,326	1,548,542	b	25.7
Toledo & Ohio Central.....	D 117,097	826,951	d 944,048	1,086,651	b	76.1
Toledo, St. Louis & Western.....	760,549	1,248,218	d 487,669	994,294	76.5	125.5
Wheeling & Lake Erie (Inc. L. & W. V.).....	1,099,856	1,192,764	d 92,908	1,723,315	63.8	69.2
Total, Ohio-Indiana District.....	15,909,487	22,820,109	d 6,910,622	21,809,702	72.9	104.6
Grand total, Eastern Region.....	129,296,408	142,147,069	d 12,850,661	203,449,878	63.6	69.9
ALLEGHENY REGION						
Baltimore & Ohio (Inc. Coal & Coke).....	5,066,914	7,193,131	d 2,126,217	28,031,146	18.1	25.7
Bessemer & Lake Erie.....	2,005,600	4,940,006	d 2,934,406	4,713,564	42.5	104.8
Buffalo & Susquehanna.....	D 409,326	113,043	d 522,369	591,613	b	19.1
Central of New Jersey.....	1,408,865	6,375,183	d 4,966,318	9,352,301	15.1	68.2
Cumberland Valley.....	447,030	1,848,302	d 1,401,272	1,228,967	36.4	150.4
Grand Rapids & Indiana.....	455,093	254,425	200,668	929,385	49.0	27.4
Long Island.....	2,445,212	3,915,059	d 1,469,847	3,221,949	75.9	121.5
New York, Philadelphia & Norfolk.....	648,692	990,008	d 341,316	996,051	65.1	99.4
Pennsylvania East.....	8,042,568	19,952,680	d 11,910,112	51,416,782	15.6	38.8
Pennsylvania West.....	5,786,456	4,464,444	1,322,012	14,992,785	38.6	29.8
Philadelphia & Reading.....	5,431,888	11,298,842	d 5,866,954	17,057,230	31.8	66.2
Pittsburgh, Cincinnati, Chicago & St. Louis.....	D 2,505,510	2,878,717	d 5,384,227	11,334,094	b	25.4
Staten Island Rapid Transit.....	68,655	33,941	34,714	356,824	19.2	9.5
Western Maryland.....	D 131,265	D 479,293	348,028	3,079,593	b	b
West Jersey & Seashore.....	11,927	D 143,998	155,925	952,682	1.3	b
Total, Allegheny Region.....	28,772,799	63,634,490	d 34,861,691	148,254,966	19.4	42.9
POCAHONTAS REGION						
Chesapeake & Ohio (Inc. C. & O. of Ind.).....	7,523,378	17,060,651	d 9,537,273	13,226,983	56.9	129.0
Norfolk & Western.....	10,133,638	18,804,782	d 8,671,144	20,634,142	49.1	91.1
Virginian.....	2,555,230	1,952,872	602,358	3,247,603	78.7	60.1
Total, Pocahontas Region.....	20,212,246	37,818,305	d 17,606,059	37,108,728	54.5	101.9

"Net Federal Income" represents Net Operating Revenue, minus Railway Tax Accruals and Uncollectible Railway Revenue, plus or minus the net balances for Equipment Rents, Joint Facility Rents, and Miscellaneous Federal Income items (if any). Item of Prior Revenue or Expense, commonly called "lapovers," have been excluded.

SOUTHERN REGION					
Alabama & Vicksburg.....	\$264,097	\$345,074	d \$80,977	\$322,854	81.8
Alabama Great Southern.....	1,498,327	2,062,786	d 564,459	1,703,180	88.0
Atlanta & West Point.....	539,640	660,606	d 120,966	252,995	213.3
Atlanta, Birmingham & Atlantic.....	D 946,458	D 572,922	d 373,536	480,000	b
Atlantic Coast Line.....	7,213,015	11,685,220	d 4,472,205	10,180,915	70.8
Carolina, Clinchfield & Ohio.....	1,497,762	1,162,282	335,480	1,627,963	92.0
Central of Georgia.....	1,583,969	3,917,977	d 2,334,008	3,408,809	46.5
Charleston & Western Carolina.....	171,233	549,209	d 377,976	466,921	36.7
Cincinnati, New Orleans & Texas Pacific.....	525,956	3,092,962	d 2,567,006	3,541,040	14.9
Florida East Coast.....	1,444,349	1,633,983	d 189,634	2,842,842	50.8
Georgia.....	1,326,143	2,256,504	d 930,361	858,622	154.5
Georgia & Florida.....	D 441,538	D 104,538	d 337,000	88,000	b
Georgia, Southern & Florida.....	62,593	351,763	d 289,170	511,457	12.2
Gulf & Ship Island.....	D 81,384	364,779	d 446,163	595,883	b
Gulf, Mobile & Northern.....	D 98,977	200,289	d 299,266	558,338	b
Illinois Central.....	4,479,526	12,981,324	d 8,501,798	16,282,374	27.5
Louisville & Nashville.....	11,884,568	19,568,935	d 7,684,367	17,310,495	68.7
Louisville, Henderson & St. Louis.....	510,724	648,071	d 137,347	343,916	145.9
Mississippi Central.....	D 184,901	310,921	d 495,822	308,525	b
Mobile & Ohio.....	D 1,025,823	244,315	d 1,270,138	2,597,478	b
Nashville, Chattanooga & St. Louis.....	1,242,397	4,145,298	d 2,902,901	3,182,089	39.0
New Orleans & North Eastern.....	187,064	990,248	d 803,184	1,204,992	15.5
New Orleans Great Northern.....	14,593	407,939	d 393,346	519,904	2.8
Norfolk Southern.....	163,700	291,453	d 127,783	1,266,871	12.9
Northern Alabama.....	64,343	192,542	d 128,199	150,583	42.7
Richmond, Fredericksburg & Potomac.....	2,763,900	3,025,529	d 261,629	1,136,974	243.1
Seaboard Air Line.....	1,867,961	3,658,391	d 1,790,430	6,497,025	28.8
Southern.....	10,642,549	29,512,202	d 18,869,657	18,653,893	57.1
Southern Railroad in Mississippi.....	D 70,887	D 40,397	d 30,490	6,990	b
Tennessee Central.....	D 536,168	D 2,468	d 533,700	162,734	b
Vicksburg, Shreveport & Pacific.....	454,510	342,116	112,394	337,948	134.5
Washington Southern.....	1,875,153	1,736,088	139,065	467,230	401.3
Western of Alabama.....	569,354	621,916	d 52,562	288,238	197.5
Yazoo & Mississippi Valley.....	4,475,913	4,499,924	d 24,011	3,862,318	115.9
Total, Southern Region.....	53,937,173	110,740,325	d 56,803,152	102,020,396	52.9
NORTHWESTERN REGION					
Chicago & North Western.....	12,771,197	12,498,939	272,258	23,201,016	55.0
Chicago Great Western.....	1,126,605	61,009	1,065,596	2,953,450	38.1
Chicago, Milwaukee & St. Paul.....	3,250,867	3,933,874	d 683,007	27,945,819	11.6
Chicago, St. Paul, Minneapolis & Omaha.....	2,698,776	2,631,520	67,256	4,934,790	54.7
Duluth & Iron Range.....	3,082,978	3,824,716	d 741,738	2,355,242	130.9
Duluth, Missabe & Northern.....	11,401,721	12,495,342	d 1,093,621	5,122,051	222.6
Duluth, South Shore & Atlantic.....	D 22,517	267,704	d 290,221	562,348	b
Elgin, Joliet & Eastern.....	3,322,507	4,781,037	d 1,458,530	2,862,177	116.1
Great Northern.....	12,827,280	12,368,069	459,211	28,666,681	44.7
Mineral Range.....	D 107,154	10,827	d 117,981	144,006	b
Minneapolis & St. Louis.....	D 314,698	D 553,275	d 238,577	2,706,994	b
Minneapolis, St. Paul & S. S. Marie.....	5,057,635	3,925,862	1,131,773	10,578,977	47.8
Northern Pacific.....	18,450,790	28,317,433	d 9,866,643	30,057,760	61.4
Oregon-Washington R. R. & Nav.....	3,224,299	4,490,859	d 1,266,560	4,491,883	71.8
Spokane, Portland & Seattle.....	1,652,116	2,694,420	d 1,042,304	1,871,083	88.3
Total, Northwestern Region.....	78,422,402	92,540,188	d 14,117,786	148,454,277	52.8
CENTRAL WESTERN REGION					
Arizona Eastern.....	588,433	1,479,821	d 891,388	1,242,475	47.4
Atchison, Topeka & Santa Fe.....	40,060,757	41,709,460	d 1,648,703	39,867,072	100.5
Chicago & Alton.....	D 244,395	1,817,094	d 2,061,489	3,178,315	b
Chicago & Eastern Illinois.....	D 423,466	1,560,806	d 1,984,272	2,946,001	b
Chicago, Burlington & Quincy (Inc. Q. O. & K. C.).....	25,428,088	25,089,199	338,889	33,390,080	76.2
Chicago, Peoria & St. Louis.....	D 868,051	D 528,860	d 339,191	127,540	b
Chicago, Rock Island & Pacific (Inc. C. R. I. & G.).....	9,067,411	9,217,002	d 149,591	15,880,681	57.1
Chicago, Terre Haute & Southeastern.....	D 277,560	769,487	d 1,047,047	922,785	b
Colorado & Southern.....	1,644,897	2,868,352	d 1,223,455	2,481,212	66.3
Denver & Rio Grande.....	6,113,737	5,402,884	620,853	8,319,377	73.5
Denver & Salt Lake.....	D 945,793	D 961,458	15,665	353,290	b
El Paso & Southwestern.....	2,993,415	4,945,206	d 1,951,791	4,145,102	72.2
Fort Worth & Denver City.....	2,912,058	1,824,785	1,087,273	1,891,386	154.0
Los Angeles & Salt Lake.....	3,353,127	2,791,315	561,812	3,414,751	98.2
Northwestern Pacific.....	1,103,594	1,485,017	d 381,423	1,338,000	82.5
Oregon Short Line.....	10,754,273	10,723,916	30,357	10,204,619	105.4
St. Joseph & Grand Island.....	D 48,318	D 103,787	55,469	373,811	b
Southern Pacific (Pacific System).....	32,677,799	34,016,787	d 1,338,988	36,171,354	90.3
Toledo, Peoria & Western.....	D 217,656	D 4,377	d 213,279	159,740	b
Union Pacific.....	32,873,256	35,629,321	d 2,756,065	23,670,741	138.9
Western Pacific.....	3,575,968	2,604,528	971,440	1,900,350	188.2
Total, Central Western Region.....	170,121,574	182,426,498	d 12,304,924	191,978,682	88.6
SOUTHWESTERN REGION					
Fort Worth & Rio Grande.....	20,514	D 61,994	82,508	1,301	1576.8
Gulf Coast Line.....	1,270,855	1,928,596	d 657,741	1,140,676	111.4
Gulf, Colorado & Santa Fe.....	2,466,881	2,854,270	d 387,389	2,828,218	87.2
International & Great Northern.....	D 1,404,787	1,378,645	d 2,783,432	1,394,946	b
Kansas City, Mexico & Orient System.....	D 1,244,673	D 692,245	d 552,428	150,000	b
Kansas City Southern (Inc. T. & F. E.).....	2,189,359	3,128,053	d 938,694	3,535,427	61.9
Louisiana & Arkansas.....	D 146,634	86,232	d 232,866	359,362	b
Midland Valley.....	343,136	766,580	d 423,444	444,346	77.2
Missouri & North Arkansas.....	D 664,377	D 115,861	d 548,516	175,000	b
Missouri, Kansas & Texas.....	4,562,769	5,215,538	d 652,769	5,853,831	77.9
Missouri, Kansas & Texas of Texas.....	D 2,413,445	D 790,996	d 1,622,449	621,773	b
Missouri, Oklahoma & Gulf.....	D 1,041,628	D 529,613	d 512,015	D 83,603	b c
Missouri Pacific.....	4,363,698	11,821,976	d 7,458,278	14,206,814	30.7
St. Louis-San Francisco.....	14,695,141	11,247,194	3,447,947	13,690,213	107.3
St. Louis-San Francisco & Texas.....	D 179,720	D 117,899	d 61,821	D 332,953	b c
S. Louis Southwestern.....	3,070,880	3,681,615	d 610,735	3,355,749	91.5
St. Louis Southwestern of Texas.....	D 1,508,721	D 338,255	d 1,170,466	555,165	b
San Antonio & Aransas Pass.....	D 1,141,723	D 126,023	d 1,015,700	456,684	b
Sunset Lines (Inc. H. & T. C. and H. E. & W. T.).....	9,208,659	13,836,811	d 4,628,152	8,503,128	108.3
Texas & Pacific.....	3,621,573	3,719,146	d 97,573	4,107,432	88.2
Trinity & Brazos Valley.....	D 612,360	D 430,238	d 182,122	63,158	b
Wichita Falls & Northwestern.....	D 440,226	D 488,896	88,670	145,245	b
Total, Southwestern Region.....	35,055,171	55,972,636	d 20,917,465	61,588,468	56.9
Grand total, all regions.....	515,817,773	685,279,511	d 169,461,738	892,855,395	57.8

Operating expenses of 1918 do not include those month's proportion of retroactive wage payments made and accrued in subsequent months and are, therefore, understated by \$30,125,313. Operating expenses of 1919 contain retroactive wage payments applicable to prior months and are, therefore, overstated by \$30,193,602.

"a"—Less than one-tenth of one per cent.

"b"—Per cent not computed as Net Federal Income this year is a deficit.

"c"—Per cent not computed as Standard Return is a deficit.

"d"—Decrease.

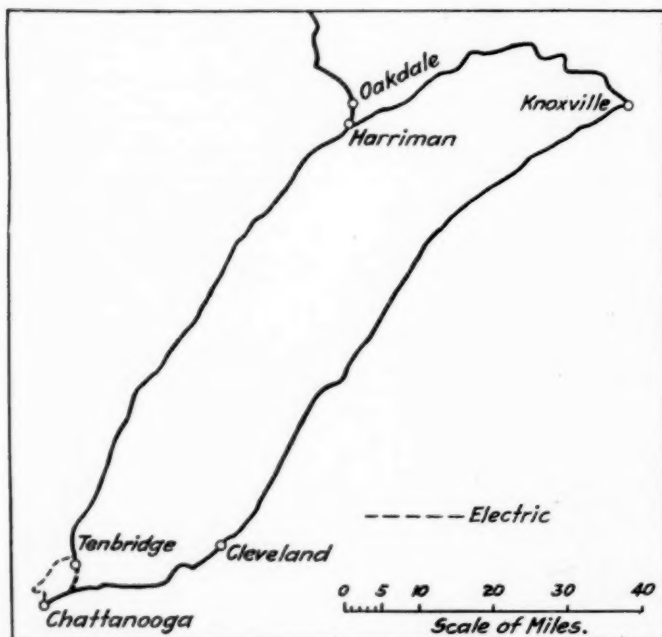
"D"—Deficit.

Detouring for Five Months

BECAUSE OF THE CONDEMNATION of the bridge over the Tennessee river, five miles north of Chattanooga, the trains of the Cincinnati, New Orleans & Texas Pacific (Southern Railway System) had to be sent around by way of Knoxville every day from August 9, 1919, to January 19, 1920; and the officers of the road think that the operation of the Coster and the Knoxville divisions, single track, during that period has set a new and high record for the movement of trains over a single-track line. The nearest convenient point for diverting southbound trains was at Oakdale, four miles north of the junction of the C. N. O. & T. P. with the Coster division. The lines over which trains were detoured were called upon to handle almost double the normal number of trains. In the period named there were moved between Oakdale and Knoxville 6,539 trains, an average of over 40 a day; and between Knoxville and Chattanooga 7,318 trains, an average of over 45 a day. The heaviest movement on any one day between Knoxville and Chattanooga was 62 trains, and between Oakdale and Knox-

normal passenger traffic of the C. N. O. & T. P. between Oakdale and Chattanooga is five through and two local trains each way daily.

The relative situations of the different places are shown in the sketch. By the direct line from Oakdale to Chattanooga the distance is 84 miles. That portion of the road south of the bridge is shown in a broken line. The light broken line at the left is the electric road over which the Southern ran its local passenger trains. The length of the detour was 166 miles; Oakdale to Knoxville, 56 miles, and Knoxville to Chattanooga, 110 miles. Between Oakdale and Knoxville there are seven passing tracks. The heavy trains were each drawn by two engines with 22-in. cylinders, taking 2,000 tons eastward and 1,500 tons westward. The east-bound trains had to have helpers over a two per cent grade for 16 miles. The line between Knoxville and Chattanooga has lap sidings at most of the stations. On this line Mikado locomotives were used, hauling 2,000 tons westward and 1,600 tons eastward. There are several grades of one per cent. The manual block system is in effect throughout these lines.



Map Showing Route Taken by Cincinnati, New Orleans & Texas Pacific Trains Detoured Through Knoxville

ville 52 trains, in addition to 20 movements of helper engines. Between Knoxville and Chattanooga was 55.6 per day.

During the period there were handled between Oakdale and Knoxville 2,369 passenger trains (739 C. N. O. & T. P. and 1,630 Southern) and 4,240 freight trains (1,748 C. N. O. & T. P. and 2,492 Southern); between Knoxville and Chattanooga 2,695 passenger trains (739 C. N. O. & T. P. and 1,956 Southern) and 4,623 freight trains (1,748 C. N. O. & T. P. and 2,875 Southern). In addition, there were 3,000 helper movements between Oakdale and Knoxville.

All of this train service throughout the five months was accomplished without serious accident or delay, and the management has congratulated the men in all departments, transportation, mechanical and roadway, on a very creditable record; and the men are told that they have rendered loyal and efficient service throughout the entire movement.

Way-station passengers between Oakdale and Chattanooga over the direct line were carried by trains, drawn by light locomotives, which were run from Tenbridge over a local electric line, with a terminus on Market street, Chattanooga, about one mile from the Southern Railway station. The

I. C. C. Prepares for Rate Advance

WASHINGTON, D. C.

THE INTERSTATE COMMERCE COMMISSION has itself taken the initiative in opening the prospective general rate advance case, which will be necessary to put the railroads on a self-sustaining basis after the expiration of the six months' guaranty period provided by the new transportation act, by announcing a hearing at Washington on March 22 for the purpose of considering the procedure to be adopted to comply with the rate-making section of the law which requires a return of 5½ or 6 per cent upon the aggregate value. This answers numerous queries as to whether it would be necessary for the railroads to start the procedure by filing with the commission the application for a general advance in freight rates on which a committee of the Association of Railway Executives has been at work for several months. The commission's announcement was made in the form of a notice "to all interested parties" on March 4, in which, after quoting from the provisions of the rate-making section, the commission says:

"On March 22, 1920, at 10:30 a. m., the Interstate Commerce Commission will hear in its hearing room at Washington, D. C., those who desire to be heard with respect to matters required to be done by the commission, pursuant to the above statutory provisions, and who make seasonable application for time as provided below.

"The subjects for discussion are:

"1. Whether for the purpose of said section 15(a) the rate adjustment shall be made for the carriers as a whole or by rate groups or territories to be designated by the commission, and if the latter, what rate groups or territories should be so designated.

"2. What methods should now be employed under section 15(a) for determining the aggregate value of the railway property of the carriers as a whole, or of the carriers as a whole in each of such rate groups or territories.

"All persons desiring to be heard should so notify the chief, Bureau of Dockets, Interstate Commerce Commission, Washington, D. C., on or before March 20, 1920, preferably by telegram, stating the amount of time sought and naming any carriers, shippers, organizations, state commissions or other bodies on whose behalf they may appear."

LET US HAVE DONE with the thumb plans, and the Plumb plans, and all the other fool plans, and get out and Americanize the railroads.—*Labor and Industrial Journal, Seattle, Wash.*

E. E. Clark Elected Chairman of Interstate Commerce Commission

WASHINGTON, D. C.

EDGAR E. CLARK, the senior member of the Interstate Commerce Commission, was elected chairman of the commission on March 8, succeeding Clyde B. Aitchison, after Robert W. Woolley and Joseph B. Eastman had in turn been elected, in pursuance of the commission's policy of rotating the office in the order of seniority, and had each declined. A delicate problem which has caused some agitation about the commission's offices for some time was thus solved gracefully and harmoniously.

Commissioners Woolley and Eastman explained that they had declined the honor of presiding over the commission and being its spokesman in public for a year because they had both opposed the legislation under which the commission is now acting and while they now intend to do everything in their power to make the administration of the new law a success they felt it might have a bad psychological public effect to have the first chairmanship after the enactment of the law held by a man who had opposed the termination of federal control. They also expressed a feeling that with the manifold new duties and responsibilities created for the commission by the transportation act the chairmanship ought to go to the most experienced instead of the least experienced of the commissioners and also that it was particularly fitting that the office should be held by Commissioner Clark because he had stood forth as the proponent of the legislation in representing the commission as chairman of its legislative committee at the hearings before the Congressional committees.

Commissioner Woolley has been a member of the commission for two and a half years and was next in line for the chairmanship because all of the other members had served as chairman in turn except Commissioner Eastman, who has been a member for only about a year, although he had had previous experience, as a member of the Massachusetts Public Utilities Commission, in dealing with affairs such as come within the commission's jurisdiction. Commissioner Clark has been a member since 1906.

The commission announced the result of the election in the following statement:

"The Interstate Commerce Commission, in pursuance of the policy adopted by it January 13, 1911, for rotating the office of chairman annually in the order of seniority of the members of the commission, today elected Commissioner Robert W. Woolley as chairman in succession to Clyde B. Aitchison, whose year of service in that capacity will expire March 16. Commissioner Woolley declined: whereupon the commission elected Commissioner Joseph B. Eastman its chairman. As Commissioner Eastman likewise declined, the commission elected Commissioner Edgar E. Clark, its senior member, as chairman. His term, which commences March 17, was made

to run until June 30, 1921, to make the term of chairman coterminous with the government's fiscal year. The action of the commission indicated was unanimous, in all regards."

The plan of electing the chairman each year in rotation was adopted by the commission after the resignation of Martin A. Knapp, who had served as chairman for several years, had raised a question as to whether any of the commissioners should be made permanent chairman. At that time President Taft suggested the selection of Mr. Clark but the rotation rule was adopted and Commissioner Clements was elected. The succeeding chairmen have been Commissioners Prouty, Clark, Harlan, McChord, Meyer, Hall, Daniels, and Aitchison.

Mr. Clark was born February 18, 1856, at Lima, N. Y., and was in railway service from 1874 to 1889 as a brakeman and conductor. From 1889 to 1890 he was vice-president of the Order of Railway Conductors and from 1890 to 1906 he

was president of the order. While in this position he was appointed a member of the Anthracite Coal Strike Commission in 1902. He was appointed a member of the Interstate Commerce Commission in 1906 by President Roosevelt as a representative of the labor interests and during the first two years of his connection with the commission he was on several occasions chosen as the representative of labor organizations in wage arbitration proceedings.

For several years, however, perhaps because of his increasing responsibilities as one of the most experienced of the commissioners in its all around activities, he has been less closely identified with labor matters and has not been regarded as in any sense a representative of the labor organizations. Commissioner McChord has been more directly identified with those phases of the commission's work in which the labor organizations are particularly interested, through

his supervision of the work of the safety and locomotive inspection bureaus in connection with accidents and safety appliances. Commissioner Clark has been more closely identified with transportation matters, although for several years he was particularly in charge of tariff matters and did much valuable work along the line of simplification of tariffs.

In 1917 he was made an ex-officio member of the Railroads' War Board.

When Mr. Clark was reappointed a member of the commission on December 31, 1912, by President Taft, the confirmation was delayed by the Senate, along with other appointments, until after March 4, when he was reappointed by President Wilson. He was then elected chairman of the commission. In addition to his long experience with the commission and the high reputation he enjoys among all classes interested in its work, Mr. Clark also has the distinction of being the only practical railroad man among the commissioners and he is one of three of the present commissioners who has not been a state railroad commissioner.

With Chairman Aitchison and Commissioner McChord,



Edgar E. Clark

Mr. Clark has recently been serving on a special committee appointed by the commission to study the new railroad law in relation to the new duties and authority it imposes upon the commission and to plan for its administration.

Systematizing the Handling of Labor Conference Boards

By W. I. Finch

A METHOD OF HANDLING the proceedings of conferences with labor unions, which is equally adaptable to other conferences, has been put into practice with very beneficial results by a prominent Eastern road. The advantages gained are (a) Full information and preparation as to what is to be discussed. (b) Limited meetings and quick disposition of cases. (c) Prompt issuance of proceedings, in fact issuing them before adjournment, if desired, to those in attendance at the conference. (d) Positive carrying out of each decision or agreement rendered. (e) Proper disposition of the various decisions, agreements and conclusions so they may be individually located in the future without delay and with all related papers.

The underlying principles are simply treating each case separately in the record and making sufficient copies to keep all files supplied. Assuming that the conference is between the head of the mechanical department and the system shop labor committee, for example, when the committee requests the conference it is asked to submit a list of subjects to be discussed. Any subjects to be introduced by the railroad officers are also listed. These two lists are combined, the subjects or cases consecutively numbered and issued to all who are to be in attendance at the conference representing either side.

Incidentally and preferably, it may occur that regular conferences are held monthly. In such event the cases are numbered consecutively from one upward commencing on the first of the year. A case always bears the same number throughout the year regardless of the number of conferences at which discussed. If further designation is desired initials representing the month and figures representing the year may be suffixed to the case number, as 5-FB-AG-19, meaning that case 5 was discussed in February and August, 1919. This number scheme has been found to be advantageous in some cases.

It is required of the labor union committee that no matters be brought into the conference that have not previously been taken up with local officers. When the local officers who are to attend the conference receive their lists they further investigate and write up separately each case, mentioning any cases not previously taken up with them by the local committees.

Simultaneously with the completion of the lists, each case as briefly presented (in five or six lines) is written up on a separate sheet of paper of letter size. The summary appears at the top and this sheet is used for taking notes during the conference on this case. It is attached to all previous papers on the subject and filed in the correspondence file, a record of the file number having previously been made on the master copy of the list of cases for that conference. Data collected between the time the lists are issued and the conference is treated as correspondence and attached to each individual file but under this note sheet.

On the day prior to the conference all of these individual cases with all papers in each are taken from the correspondence file and reviewed in a preliminary meeting of the railroad officers who will attend the conference. The cases are arranged in numerical order. If old cases are re-opened they

are placed in their proper numerical order and thereby disposed of before the new cases; for example, the cases in the December, 1919, conference may comprise:

Shop Federation case 4-FB-AP-19—Classification and rate for (old case discussed in conference of February and April, 1919, and now re-opened).
Shop Federation case 25-MA-19—Claim of (old case originally discussed in conference May, 1919, and now re-opened).
Shop Federation case 98-DC-19—Claim of (new case first discussion).
Shop Federation case 99-DC-19—Jurisdiction of work (new case first discussion).
Shop Federation case 100-DC-19—Protection of men at (new case first discussion).

On the day of the conference the cases are handled in the order of the list, which is the numerical order. Cases not previously announced as above stated are not admitted. As each case comes up, complete data, separate from the data on any other case, is available in a concise form. On top of each of the files of papers is the conference note sheet with the case numbered and briefly stated as originally presented at the top, also with necessary temporary notes and references at the side. As the discussion of the case proceeds additional points, if any, that develop are briefly noted under the description of the original case and the decision is stated about half way down the sheet.

When a decision is made a notation is entered on the note sheet of the files in which such excerpts are desired. The object of this is to prepare for thoroughly spreading the case in the files as later described. The order of cases and the exclusion of any not previously settled must be strictly adhered to. As each case is closed the papers with the note sheet are passed to the typist for writing up, or held for review by the railroad officers at recess. When the typist receives the cases they are written on stencils in consecutive numerical order and checked and as each page is completed it is run off on a duplicating machine a sufficient number of copies being made for all requirements, as previously determined. The cover sheet, containing the names of those attending the conference and the hours at which the conference is opened and closed, is made up complete except the closing hour, run off, and the closing hour inserted when known by a rubber stamp or pen. When the last case is completed and run off all the sheets are combined, and are then ready for distribution if desired during the few minutes of idle conversation that usually follows such a conference. If the hours of conference are set between rigid limits it also aids in the prompt issuance of the proceedings.

After the conference, to the individual file of papers on each case a copy of the page of the proceedings containing that case is attached and the papers returned to the proper correspondence file complete in all details and ready quickly for future reference when information on any particular subject is sought, without the need for gathering papers from several sources including what transpired at the conference. A master file copy of the proceedings with proper correspondence file numbers for each case noted thereon is filed with the proceedings of other conferences. A subject card index for all cases is a valuable adjunct for quickly finding cases that are months or years old.

Each decision or agreement not completed at the time of the conference may be carried along by this method to a conclusion concisely and independently of any other case, the same as any matter of uncompleted correspondence. If all papers on subjects discussed at a conference are kept with the complete conference proceedings and so filed, it is invariably true that they cannot be located a month hence if the subject happens to come up in another way. This is avoided by the method described.

VALDOSTA, GA., NEEDS A UNION STATION, according to the Chamber of Commerce and business interests of Valdosta. A campaign has already been started to push the proposition.

A Scientific Study of Railway Track Under Load*

Second Progress Report, Covering Extensive Field and Laboratory Tests, Begun in June, 1914

In Two Parts: Part II. Track Depressions

IN THE FIRST PROGRESS REPORT of the committee the general question of the depression of track under load was considered and the effect of the make-up and condition of the track structure upon stresses in rail and distribution of load among the ties was discussed. In connection with the tests to determine the flexural action of ties in track tests have been made to obtain the depression of the track under the conditions which obtained when these tests of ties were made.

In the tests of track depression made in 1918 the load was furnished by cars loaded in such a way as to give the desired weight on the track at one end of the car. The end of the car to be used in the test was weighed on track scales. In the use of the data of the tests it is assumed that each wheel of the car truck carried one-fourth of the weight so found. In the tests on the Illinois Central three loads were used, 100,000, 53,000, and 18,000 lb. on a single truck; that is, 25,000, 13,250 and 4,500 lb. on each of the four wheels of the truck. The smallest load was taken as being sufficiently heavy to bring the tie to a full bearing on its bed and to eliminate any play which may exist between rail and tie and tie and ballast. The wheel base of the truck was 5 ft. 6 in. The distance between trucks (31 ft. center to center for the car giving loads of 100,000 and 53,000 lb. and 29 ft. for the one giving 18,000 lb.) was such that the load on the trucks at the farther end of the car did not have a large effect upon the track depression at the middle of the length of the rail, except on Section K and on cylinder ballast (alternate joints) where the load was placed at the quarter points of the rail.

The tests were made on the main line of the Illinois Central on sections of track marked B, C, and K. The ties were 6-in. by 8-in. by 8-ft. sawed oak. The rails on Sections B and C was 85-lb. rail of A. S. C. E. section, and on Section K was 125-lb. rail. The main track had not been tamped for some time, and although only passenger trains used it ordinarily, the track was not in good surface condition. The track depressions found and the flexural action of the ties go to show looseness and play between tie and ballast.

On Section B tests were made at two locations (adjoining rails) designed B-1 and B-2. This section has 12 in. of stone ballast. On Section C the two locations (also on adjoining rails) were designated C-1 and C-2. This section has 6 in. of stone ballast. At Section K the ballast is 24 in. deep.

As would be expected, the stiffer rail (125-lb.) gives a wider distribution of load and a smaller maximum tie reaction. By the analysis for the conditions of the test, the reaction of the tie at a wheel is calculated to be 13 per cent of the load on the truck. The depression profiles are regular, and nearly the same for the two rails, as might be expected with the stiffer track.

The amount of the play between rail and tie and tie and ballast shown by the load-depression diagrams ranged from 0.06 to 0.18 in. (untamped track). On some of the sections the amount varied considerably throughout the length carrying the load, say, 0 to 0.10 in., showing a great diversity in the bearing of the several ties. The condition of the bearing at the two sides of the track also differed considerably. These

facts will be found to be significant when the discussion of the flexure of ties is made. It is true, of course, that in places away from the test sections, which had ties of uniform dimension and spacing, the track play was greater and more variable, as could be observed at the time trains were passing.

The values of u , the modulus of elasticity of rail-support, obtained from the test data for locations B and C, range from 900 to 1,300 lb. per in. per in., with an average value of 1,100. The value at location B-2, after the track had been tamped slightly, was about 1,200. The value at location K (24 in. of ballast not recently tamped) was about 1,200. The value for the test on cinder ballast was 1,000, although it must be borne in mind here again that this track was not in good surface.

Tests for track depression were also made on the Chicago, Milwaukee & St. Paul. The loads on the truck at one end of a car were 100,000, 68,000 and 37,000 lb., which were assumed to be equally divided among the four wheels of the truck. The wheel base of the truck was 5 ft. 6 in., and the distance center to center of trucks was 28 ft. 10 in., 29 ft., and 25 ft. 11 in., respectively, for the cars giving the loads named above. As the rails were laid with alternate joints, the center of the trucks was placed at the quarter points of the rail.

On the main-line track at Deerfield, Ill. (called by the railroad company Class A track), the rail was 100-lb. A. S. C. E. section. The ties were mostly hewn red oak ties, zinc-chloride treated, though perhaps 20 per cent were sawed ties which had replaced old ties. The hewn ties were variable in width, ranging from 8 to 11 in.; the sawed ties were 8 in. wide. Part were 7 in. thick and 8 ft. 6 in. long, and part 6 in. thick and 8 ft. long. The ties were spaced about 20 in. center to center. The spacing was fairly uniform. The ballast was bank-run gravel, 45 per cent of which passes a $\frac{1}{4}$ -in. sieve. The depth of ballast was about 36 in. In all cases the shoulder was adequate to give full support at the end of the tie. The track surface was in good condition, but it had not been tamped for some months.

On the branch-line track at Libertyville (called by the railroad company class B track) the rail was 75-lb. A. S. C. E. section. The ties were mostly hewn soft wood ties, quite irregular in shape, but 20 per cent were sawed ties, both oak and soft wood. The sawed ties were 6 in. by 8 in. by 8 ft., and the hewn ties were somewhat wider. The ties were spaced 20 to a rail length of 33 feet. The ballast was gravel about 36 in. deep. Due to the existence of the passing track, there was little slope on one side of the track. On the other the ballast sloped from 3 in. below the top of tie at its end at a 1 to 2 slope, forming a less effective support than was found on the other side. The track surface was in indifferent condition, the track not having been tamped for some time. At places this track had been built over soft spots, which at times had given trouble by subsidence.

The value of u , the modulus of elasticity of rail-support obtained from the track depression profiles, is about 2,000 lb. per in. per in. for class A track, and 900 for class B track. The value for class A track is materially higher than that found in the Illinois Central tests. Several factors may contribute to this—longer ties, broader ties (more bearing area in a rail length), gravel ballast instead of limestone ballast,

*In two parts. See the *Railway Age* for March 5, page 670 for part I.

greater depth of ballast, or better supporting conditions at ends of ties.

Depression, Flexure and Bearing

Pressure of Cross Ties

In railroad track of ordinary construction the cross-tie performs many important functions—it bears the load transmitted from the rails, makes a definite connection and spacing between the two lines of rails, transmits the pressure to the bed of ballast and by its properties as a beam distributes this pressure along its length. Thus, it is subject to compression under and in the vicinity of the rail, to tension or compression as a structural connection between rails, and to beam action in giving distribution to bearing pressures along its bed. Of these the last bears the most important relation to the problems here considered; the others will not be treated at this time.

The cross-tie has many features which make it an acceptable part of ordinary track construction. It has great flexibility in meeting the varied and diverse requirements of both ordinary and unexpected track and load conditions. It gives facility in providing, maintaining or shifting the gage, line and surface of track and in tie renewals and other changes in track, and is accepted as an economical and reliable element of ordinary track construction. It is known to be effective under very imperfect track conditions, being used where great variation of size and quality of tie, depth and quality of ballast, and condition of tamping of track may be expected to cause marked differences in the requirements put upon it. Quantitative data on the flexural action of the tie and the way its loads are distributed along its bed, as well as of its depressions under load, therefore should be of considerable value.

The use of pressure-measuring devices between tie and ballast gave general information and served fairly well in the laboratory investigation; but the number required in the length of one tie to give the needed information and the large number of ties required to determine the run of conditions, the disturbance of the track through inserting the instruments with the uncertainty as to whether the resulting condition of track was representative of normal track, and the chance for instruments becoming deranged in the interval elapsing until the track would seem to have reached normal conditions, all combined to make the direct measurement of bearing pressure impracticable as a method of getting the information desired on this subject.

Of indirect methods the measurement of the strains or deformations along the length of the tie as produced by its bending was considered, but variations in the properties of the wood, especially under field conditions, as well as uncertainties of other kinds, rendered this method impracticable.

A trial was then made of a method of measuring the curve of flexure of the tie as it bends under the applied load in the track and making use of the relations between flexure, bending moment, and load as derived by mechanics of materials for a beam having the properties of the timber tie used. The measurements made included also the depression of the tie below its original position, as produced by the compression of the ballast and roadway or other conditions. This method is manifestly imperfect, having a number of limitations and uncertainties, but it is not difficult to use, the track conditions may be taken as they are found, and the number of tests may be chosen to cover a variety of conditions of ties and track. The measurement of tie depressions also gives information of value in the study of stresses in track. The method was used therefore as being the best known method applicable to the conditions of the track tests. It has given data of value, although certain uncertainties and inconsistencies are discernible in the results, especially those resulting from the local bearing compression in the vicinity of the rail. The

details of the method will be described in the following article. The consideration of the bending moments will be given in a succeeding article. Here it is only necessary to note that the curvature of the curve of flexure of the beam at any point is proportional to the corresponding moment and stress—the sharper the curve the greater the moment and the stress.

In measuring the depression and flexure of the ties a stiff wooden reference bar was placed under the rails between ties and close to the one on which measurements were taken. At each end of this bar was attached an iron cross-bar about 2 ft. long, the ends of which rested on two substantial stakes well driven into the ground, giving a firm support to the apparatus. These stakes were 7 ft. or more from the center of the track. Attached to the main bar were iron brackets which projected over the tie. To each bracket was attached a piece of small angle iron; on this was bolted an Ames dial gage which reacted against a tack driven at the mid-point of the width of the tie and served to measure the depression of the tie at that point. The arrangement of the attachment permitted adjustments vertically and horizontally.

Before applying a load the dials were adjusted to read zero. For each load applied the dials were read to the nearest half-thousandth of an inch. When the load was removed a small depression was indicated by the dials and they were again set at zero. The same load was again applied, the process being continued until three consistent sets of readings were obtained. The average of these sets of readings was used.

In the tests on the Illinois Central nine dial gages were used—five between rails and two on the outer side of each rail. This number of points was found not to determine the curve of flexure as accurately as was desired, and in the later tests made on the Chicago, Milwaukee & St. Paul the number of dials was increased to 13, 7 between rails and 3 on the outer side of each rail; this improved the character of the data very much. In each case the dials next the rails were 1 in. to 2 in. away from the base.

The loads were given by means of loaded cars, as already described for the tests of track depression. The leading wheels of the truck carrying the load were placed directly over the tie under test. The amount of the load considered to bear on the tie under test was taken from the results of the track-depression tests at the given location. The smallest load used was generally more than sufficient to overcome the play between tie and ballast, though of course this should not be taken to mean that under this condition the pressure on the bed of ballast is distributed uniformly along the length of the tie. The largest load used gave a tie reaction considerably less than that which would be caused at and between drivers by an ordinary Mikado or Santa Fe type locomotive. In the study of the data the largest load was generally used, though the smaller loads have given valuable information on the action of the tie.

The readings in all the tests checked very closely and the results are concordant. The effect of the rail bearing in compressing the fibers adjacent to the rail is unknown, but the reading of the dials next to the rail must include the general depression and bending of the tie and also a third element—the influence of the local downward compression of the tie due to the bearing pressure of the rail; the latter will have to be taken into account in interpreting the curves of flexure as related to bending moments and stresses.

The ties in the main line of the Illinois Central test track were sawed oak ties 5 in. by 8 in. by 8 ft. The tests on the freight lead were made on two hewn oak ties about 8¾ in. by 6¼ in. by 8 ft. and a sawed oak tie 6 in. by 8 in. by 8 ft. The location of the tests on the Chicago, Milwaukee & St. Paul has already been described. Sawed ties were selected for test because of their uniformity of cross-section.

The ties on class A track were 7 in. by 8 in. by 8 ft. 6 in.; those on class B track, 6 in. by 8 in. by 8 ft. Tie plates 8 in. by 9 in. were on all ties in the class B track.

In some of the sections on the Illinois Central there is a scant amount of ballast above the bottom of the tie near its ends, particularly on the outer side of the track. On the Chicago, Milwaukee & St. Paul, as has already been pointed out, the sections are such that there was opportunity for full support at the end of the tie. The condition of the track surface has been described under "Track Depressions"; it may be well again to call attention to the fact that the track in all the test locations had not received a general tamping for some time and that in some locations it was apparent that the track was in indifferent condition as to surface and tamping, and thus furnished opportunity to determine depressions and flexure under other than best conditions, and really under conditions frequently found in practice.

The load on a single tie, as determined by the track-depression profiles, ranged from 11,000 to 18,000 lb.; perhaps averaging 15,000 lb. The tie depression under this load varies from 0.35 in. to 0.5 in.

An examination of the diagrams of depression and flexure brings out a variety of conditions. There is bending of tie in every case, though the form of the curve varies greatly. It is evident that there must be great differences in the way in which the bearing pressure varies along the length of the tie under the conditions to which ties are subjected. In many ties there is play between the tie and its bed at one point or another, or even over a considerable portion of its length, which not only gives unevenness of track depression but increases the intensity of bearing pressure at some point along the tie and gives added bending stresses in the tie. There is a great variety of the distribution of bending moments along the tie—the bending moment at a section at the middle of the tie may be positive in one tie and negative in another tie.

The conditions just referred to are ordinarily termed end-bound and centerbound. The latter condition is very common; in fact, the upward curvature at the middle and a large negative moment accompanying it may be expected in most track after traffic has had its effect upon track condition. Change in position of the ballast under traffic conditions will soon modify the distribution of bearing pressure. Even though the tamping is restricted to a space adjacent to the two rails, the depression of the track under load may be expected to bring some bearing pressure at the middle of the tie length, and the action of a repetition of applications of pressures of high intensity over the tamped portion will cause a movement of the ballast and a redistribution of bearing pressures.

The condition of the ballast section at and beyond the end of the tie seems to have a modifying influence upon bearing conditions. The scantness of the shoulder in Section B of the Illinois Central evidently contributed to the loose ends and play of many of these ties, especially those whose looseness was noticeable by inspection; the effect of this probably becoming apparent only after traffic had produced appreciable changes in the position of the particles of ballast. The more complete support at the end of the tie in the ballast section on the Chicago, Milwaukee & St. Paul gives conditions which are quite different.

As the amount of depression affects the modulus of elasticity of rail support, u , it may be expected that the condition of tie and ballast will be influential factors. In determining u , the play in track depression was omitted from the values, though of course it enters into the development of stresses in the rail and is known to produce higher stresses than would otherwise occur, especially if the play varies from tie to tie. The bending of the ties, however, and especially that under the rail, tends to make low values of u .

Attention is called to the fact that the deflections in the flexure curve of the 7 by 9-in. ties are much smaller than those in the 6 in. by 8-in. ties; for the same loading the deflections may be expected to vary inversely as the moment of inertia of the section and the moment of inertia of the 7 in. by 9-in. tie is nearly 70 per cent greater than that of the 6 in. by 8-in. tie. It may be added that the greater stiffness of tie should help in making more uniform pressures along the length of the tie.

The composite diagram for the ties on cinder ballast gives a good appearance, symmetrical and with apparent good end bearing. The individual ties give markedly different curves, tilting first to one side of the track and then to the other. This is due not only to the ballast and condition of tamping, but to the fact that the ties were unevenly spaced and did not always lie at right angles to the rails. The change from the greatest depression occurring at the end of a tie at one side of the track to the greatest depression at the other side of the track within a short distance was not confined to the freight tracks and cinder ballast. The tilting of the tie to one side of the track, however, was more common where the shoulder of ballast was scant.

If the intensity of the tie reaction were directly proportional to the measured tie depression it would be easy to find the distribution of the tie reaction along the length of the tie by the use of the diagrams of tie depressions. Two variations from this law of distribution of pressure are known to exist; (a) due to the condition of ballast bed under the tie, the unloaded tie may not touch its bed at all points, and (b) the ballast may be more compact and more stiff at one point than at another.

A centerbound condition gives a bending moment at the middle of the tie when it is brought to a full bearing and increases the bending moment at all loads and also results in an increase of intensity of bearing pressure at the middle. A permanently formed depression at the rail acts to relieve the intensity of tie reaction there, but increases the bending moment at this point when a load is applied, which brings the tie down to full bearing. The second condition, that not giving direct proportionality between depression and intensity of bearing pressure, is particularly evident in freshly placed ballast. In well compacted ballast the variation from proportionality may be expected to be slight. Immediately after tamping, the bed may be somewhat stiffer at the point of tamping; as the effect of tamping disappears through the movement of the particles of ballast, the yieldability of the ballast under that load, that is, the modulus of elasticity of the mass, tends to become more uniform along the length of the tie.

A study of the flexure curves of the ties tested in track show that a variety of conditions of tie bearing may exist. Even in well-tamped track uniform distribution of bearing pressure cannot occur. The intensity of bearing pressure will be greater near the rail than at the middle of end of the tie, since the bending of the tie will result in larger depressions at that point. The more flexible the tie the greater the variation in intensity; likewise, the stiffer the ballast the greater the variation—all resulting in increased intensity of bearing pressure at the rail. Such a condition gives a smaller value of the bending moment at the middle of the tie than would be found for uniform bearing pressure. If the ballast at the middle of the track is less compact than elsewhere the difference becomes more pronounced. The bending moment at the rail for this condition is less than for the endbound condition. With a concentration of pressures near the rails it may be expected that a permanent depression will soon be formed under the rail, a greater depression all along the tie will then occur upon the application of the heavy loads, and the bearing pressures will be distributed more uniformly along the tie. A permanently formed depression under the

rail will increase the bending moment in the tie at the section under the rail.

In centerbound track, for the smaller loads, the tie reactions are carried mostly in a short space at the middle of the tie. These small loads act to bend the tie downward at its middle to fit the shape of the bed; only a small load is needed to give this bending, particularly as the bed at the middle of the tie will be depressed under the action of the bearing pressure. Under the conditions of the tests with centerbound track, the load required to bring the tie to a bearing under the rail was probably not greater than 10 per cent of the 100,000-lb. load used. The negative moment produced by this small load is, of course, relatively large. The loads used in the test give full bearing along the tie, the depressions from the original position of the bed not differing greatly from what would be found in well-tamped track.

For an endbound tie the bending moments developed with the small loads are all positive, and for unusual conditions they may remain positive at the higher loads. A more usual condition for what is commonly included as an endbound condition develops positive moments at the middle of the tie for the smaller loads and negative moments for the larger loads.

The curves of flexure of the ties give information on the distribution of bending moments. Since the curvature of the curve of flexure of the tie varies as the bending moment developed, the distribution of bending moment along the tie may be determined if the curvature at various points is known.

If R is the radius of curvature of the curve of flexure at a given point, in accordance with beam theory, the expression

for the curvature at that point is $\frac{1}{R}$ and the bending moment M will be $\frac{EI}{R}$, where E is the modulus of elasticity of the

wood and I is the moment of inertia of the cross-section of the tie. It had been expected that the data of the flexure would be of such nature as to give fairly accurate means of determining the moments developed in the ties and their distribution. It has been found that the local vertical compression of the wood at and near the rail, due to the bearing pressure of the rail, affects the depressions of the points near the rail (the amount was small, but the flexure of the tie was also small) to such an extent as to modify the form of the curve of flexure and thus throw some uncertainty on the radii of curvature derived therefrom, even at the middle of the tie. The values found for sections at the middle of the tie are fairly accurate; those at the rail are somewhat less reliable. The average of the values found will be useful for comparison. It seems probable that measurements made at the middle of the edges of the tie would give data of more value.

The bearing pressure under the tie of course will vary in intensity along its length. A study of the data of the tie flexure tests indicates that the maximum bearing pressure per unit of length of tie, under static loading, will not ordinarily exceed twice the average bearing pressure over the length of the tie, and that for track in good condition the maximum will be less than one and one-half times the average. These values relate to bearing pressures per unit of length of tie; as will be shown in the next chapter of the report, the variation in intensity of pressure from the edge to the middle point of the width of the tie is considerable and the maximum intensity at the middle of the width may be much greater than the average.

It may be noted that the heaviest load on a tie generally occurs under the closely spaced drivers of a heavy freight locomotive, and the static load on one tie may be found approximately by dividing the weight on a driving axle by the number of ties which come within a driver spacing. It

should be noted that the present discussion relates to static loading—no allowance has been made for the effect of speed, counterweight, and impact in increasing the loads on the tie; these should be considered in finding the bending moments, stresses and bearing pressures which may develop in track service.

Transmission of Pressures in Ballast

Crushed rock, gravel, cinders, burnt clay, slag, and sand are the materials commonly used for ballast. These materials are practically devoid of cohesion, at least when first placed. Earth and clay possess cohesive properties in some degree. Non-cohesive materials consist of separate pieces which will be hereafter referred to as grains. The grains are of irregular size and shape, and when first placed form a loose mass which cannot carry load without considerable readjustments of their relative positions. Under repeated applications of load, or other working, the grains are rearranged so that the mass becomes quite compact.

By reason of its structure, a load is transmitted through a non-cohesive granular mass from grain to grain by contact pressures. The distribution of pressure is made through chains of grains in contact which lie between the load and a point in the ballast.

The following observations summarize some of the results of the tests and analysis and bring out in part the phenomena attending the transmission of pressure from the tie through the ballast:

The bearing pressure of the tie varies in intensity from its edge to its middle line; the maximum intensity is dependent upon the intensity of pressure developed at the edge. A variation in intensity exists also along the length of the tie.

The pressures which react from the lower face of the tie act in other than vertical lines, the greatest variation from the vertical direction being at the edge of the tie.

There is a concentration of pressure a short distance below the tie, say, at 3 in. to 4 in., and the intensity of pressure in the ballast at such a depth is greater than exists at the bottom of the tie.

For the tie of ordinary width the intensity of pressure at a depth of 6 in. and the distribution of vertical pressure over a horizontal plane at this depth do not differ greatly from those existing immediately under the tie. The directions of the pressures are not the same. At or below this depth the distribution of pressure laterally begins, with a consequent decrease in maximum intensity of pressure, and the change becomes more apparent as the depth increases.

The foregoing relates to the transmission of pressure from a single tie. For a number of ties with the ordinary tie spacing, the effect of the combination of pressures transmitted is readily found by superposing the values of the pressures from the several ties as obtained for a plane at the same depth. For the ordinary width of tie, the effect of the pressure transmitted from the adjacent tie to points midway between ties (overlapping lines of pressure) is noticeable at a depth equal to about half of the usual tie spacing. At a depth of three-fourths of the ordinary tie spacing the pressure immediately under the center of the tie is about one and one-half times that resulting from a uniform distribution over the horizontal plane. At a depth equal to the ordinary tie spacing the lateral distribution has become such that the variation in intensity of pressure from tie to tie is small.

The variation in intensity of pressure in the ballast lengthwise of the tie, which is dependent upon size and stiffness of tie equality of tamping, and condition of the bed on which the tie rests) becomes less and less with increase in depth, and it may be expected that the variations will be smoothed out at a depth equal to the ordinary tie spacing, or a few inches below, where there will be a fairly uniform pressure over the horizontal plane.

The tests were made on a rigid base and the results may be expected to apply to a firm roadbed capable of carrying the loads transmitted. A depth of ballast greater than that named would be found useful when the roadbed is of uneven character or yields under the load or is subjected to unusually heavy load.

The tests show that for quiescent loading there is little difference in the manner and rate of transmission and distribution of pressure for broken stone, pebble and sand ballasts; that is, at a given depth the intensities of pressure will be approximately the same, provided of course the ultimate carrying capacity of the ballast is not exceeded, and this conclusion may properly be extended to other non-cohesive materials. It will require less load to force the tie into sand ballast than into broken stone; the ultimate carrying capacity of the broken stone ballast under tie pressure is much greater than that of the sand ballast—the particles of sand ballast are more easily moved and rearrange themselves under lighter loads. For the different kinds of ballast there are great differences in the ultimate load which can be carried on a tie before ballast movement begins. The ultimate carrying capacity depends upon size of particle, smoothness of surface, and degree of angularity. A material whose mobility under pressure is increased by the addition of water or by mixture with other materials may thereby have its carrying capacity decreased. For heavy loading the ultimate carrying capacity of a ballast material is especially important.

It is evident that a principal function of the ballast immediately under the tie and for some distance down, aside from such functions as drainage, is to carry the load without material lateral movement of the ballast to that depth at which lateral distribution becomes effective. An advantage of the coarser, rougher kinds of ballast is that they will carry a greater ultimate load—which is of special importance in the upper part of the ballast. This is especially true under the jarring, vibrating loads of track service for which the ultimate carrying capacity naturally will be less than that found under the quiescent loads used in the tests.

The tests in the laboratory indicate, as would be expected also from analytical considerations, that the presence of ballast above the level of the bottom of the tie may have little influence on the quiescent load which will be carried before the ballast will work out from under the tie and allow it to settle, but that under repeated applications of load and particularly under jarring and vibratory loads the ultimate carrying capacity of the ballast is considerably increased by raising the level of the ballast surface to the top of the tie. This advantage is particularly apparent at the end of the tie, where under the whipping action of the tie under repeated deflections the particles of ballast will more readily be pushed away, since beyond the end of the tie there is no part of the track structure available for resisting the lateral pressure as is the case in the direction of the track, where another tie is always near at hand.

It seems probable that the effect of the jarring action of train loads will be to decrease the lateral distribution of pressure. It seems possible also that this tendency is counteracted in some degree by the cohesion which develops in ballast after it has been in place for some time.

It should be added that the "lines of pressure" used in the discussion are presented as being of service as an illustrative and suggestive conception which will help to explain some of the phenomena of transmission of pressure, rather than as a rigidly scientific hypothesis.

THE INTERSTATE COMMERCE COMMISSION has announced a hearing on March 24 on the question of whether a further extension of time shall be granted to complete the work of equipping freight cars with safety appliances.

New Orders Regarding Coal Diversion

DIRECTOR GENERAL HINES on March 5 issued new instructions governing coal distribution under the authority of the President's executive order dated February 28, which was intended to continue his powers over coal distribution after the termination of his control over the railroads, and another order dated March 5, specifically conferring upon him authority to make diversions of coal, which was not mentioned in the previous order. For the purpose of maintaining the necessary machinery for the exercise of this authority, Mr. Hines is retaining for the present the Central Coal Committee, of which H. B. Spencer, director of the Division of Purchases, is chairman, although it had previously stated that Mr. Spencer would leave on March 1, and he is also retaining, with some changes in personnel, the regional coal committees in the eastern part of the country as his representatives. In explanation of the new instructions, Mr. Hines said in a statement issued on March 5:

"I am advised that in the eastern section of the country, and in New England particularly, the severe weather conditions continue to interfere to a large extent with railroad operations, which is materially affecting the movement of coal from the producing sections to the consumers. The coal strike in November and December resulted in a shortage of approximately 50,000,000 tons of bituminous coal. Although during the week ended February 28, 1920, 10,250,000 tons of bituminous coal was produced and transported, and although the production and movement of bituminous coal so far in 1920 has considerably exceeded the production and movement in the same period in the three preceding years, it is a fact that demand is still considerably in excess of the supply.

"As a result the director general has received representations from a number of public utilities, schools, domestic consumers and industries that they are unable to purchase coal to meet their urgent needs and that they will have to cease operations unless they promptly secure coal. To assist the New England situation and because weather conditions have made it impossible to move much coal to New England by rail, a large amount of coal has been diverted to New England by water. This movement will be continued.

"In executive orders dated February 28 and March 5 the President in order to meet this situation has continued in the director general of railroads authority to direct the distribution of coal to the extent necessary to meet the urgent needs of public utilities, railroads and other domestic consumers. Acting on the authority thus continued, the director general has today sent out instructions to regional coal committees under his authority in the eastern section of the country for the purpose of affecting the absolute necessary diversions of coal. These committees have been instructed that diversions of coal under this authority be kept at an absolute minimum and cease entirely as soon as possible. All applicants for coal should exhaust all possible means for securing coal through the normal channels, since the power to divert will only be exercised to meet emergencies. The instructions of the director general places authority in the hands of the designated committees to make the necessary diversions. While the regional committees will continue to work under the general directions of the Central Coal Committee, Railroad Administration, Washington, D. C., applications for diversions of coal will not be forwarded to the Central Coal Committee but will be dealt with directly by the regional coal committees."

The executive order of the President of March 5 provides in part as follows:

"The director general of railroads, his successor in office, and his representatives, in addition to and in continuation of all powers and authority granted him and them in execu-

tive order of February 28, 1920, and the orders of the United States fuel administrator dated October 31, 1919, and December 8, 1919, are hereby authorized and empowered to make diversions of coal in the possession, as common carriers, of railroads operating in the United States, to the extent that it is necessary in the present emergency to provide for the requirements of the country in order of priority set out in the preference list included in the order of the United States fuel administrator of May 25, 1918; and are hereby further authorized and empowered to establish rules for the regulation of and to regulate the method of production, shipment, distribution, apportionment or storage thereof among dealers and consumers within the United States; provided, however, that this order shall not be construed as applicable to the export of coal from the United States, power over which was conferred upon J. W. Howe, Rembrandt Peals, F. M. Whitaker and J. F. Fisher by the executive order dated February 28, 1920, reinstating the order issued by the United States fuel administrator dated November 6, 1917, relating to the Tidewater Coal Exchange."

The instructions issued by the director general, in order to reduce to a minimum the diversion of coal necessary to supply the actual needs of essential consumers, include the following:

1. That all producers and shippers of bituminous coal now or hereafter under contract to furnish such coal to consumers and dealers within the United States give preference in the shipment of such coal to such consumers and dealers, to the extent necessary to supply their actual current needs, in the order prescribed in the preference list included in the order of the United States Fuel Administrator of May 25, 1918.

2. That the following committees be and hereby are designated the representatives of the director general to carry into effect the foregoing provision of this order, and be and hereby are further empowered as his representatives to make such diversions of coal in possession, as common carriers, of railroads operating in the United States, to the extent that it is necessary in the present emergency to provide for the emergency needs of consumers and dealers in the first five classes of the United States fuel administrator's preference list herein referred to, which diversions shall be made in accordance with the rules heretofore governing the activities of these committees or such modifications of these rules as may be hereafter made:

Eastern Regional Coal Committee, with headquarters in New York, with jurisdiction on the lines of the railroads which comprised the Eastern region of the United States Railroad Administration. G. N. Snider, chairman.

New England District Coal Committee, with headquarters in Boston, Mass., with jurisdiction on the lines of the railroads which comprised the New England district of the Eastern region of the United States Railroad Administration. W. T. Lamoure, chairman; James J. Storrow vice-chairman.

Ohio and Indiana District Coal Committee, with headquarters at Cincinnati, Ohio, with jurisdiction on the lines of the railroads which comprised the Ohio and Indiana district of the Eastern region of the United States Railroad Administration. H. A. Worcester, chairman.

Detroit Committee, with headquarters at Detroit, Mich., with jurisdiction over Detroit & Toledo Terminals and in the state of Michigan. P. G. Findlay, chairman.

Cleveland Committee, with headquarters at Cleveland, Ohio, with jurisdiction over Cleveland terminals. E. R. Bissell, chairman.

Allegheny Regional Coal Committee, with headquarters at Philadelphia, Pa., with jurisdiction on the railroads which comprised the Allegheny region of the United States Railroad Administration. Samuel Porcher, chairman.

Pocahontas Regional Coal Committee, with headquarters at Roanoke, Va., with jurisdiction on the railroads which com-

prised the Pocahontas region of the United States Railroad Administration. D. E. Spangler, chairman.

The Central Coal Committee at Washington will continue its general supervision.

Shortly before the new executive order was issued the American Wholesale Coal Association filed suit in the Supreme Court of the District of Columbia asking that the director general be restrained from continuing "to interfere in an illegal way with the orderly distribution of coal," and asserting that the President's powers over the handling of coal, as granted by the Lever act, have been delegated and redelegated so many times that the coal industry is no longer regulated in the public interest. The court was asked to establish a commission to settle claims between the owners of coal and those to whom it has been diverted.

The Supreme Court of the District of Columbia has issued a rule directing Director General Hines to show cause on March 12 why the injunction asked by the American Wholesale Coal Association to restrain Mr. Hines from diverting coal in transit should not be granted.

Executives Offer to Co-operate with Interstate Commerce Commission

WASHINGTON, D. C.

BOTH THE INTERSTATE COMMERCE COMMISSION and the railroad executives apparently are making earnest efforts to establish a basis of co-operation for the purpose of making successful the operation of the new transportation act in view of the many difficulties facing the railroads in seeking to re-establish themselves after over two years of government operation and those with which the commission is confronted in administering the law. As the Esch-Cummins bill was passed it contained many things that the railroads, the commission, or both, have recommended for years, although it also includes some things that neither of them wanted, and while both sides, during the process of getting the bill through Congress had occasion to point out from time to time some of what they called the shortcomings of the other, there is now manifest a disposition to forget some of the bygones and join hands in a common effort to demonstrate the advantages of private management under government regulation over the plan of government management without much regulation. Possibly both the executives and the commissioners feel a bond of sympathy as a result of having been treated in some degree at least as outsiders during the past two years, but at any rate they both have reason to feel that they are now equally on trial before the court of public opinion and are to that extent at least in the same boat.

Railroad executives have been rather frequent callers of late at the Interstate Commerce building, where they were formerly seldom seen in large groups except during general rate cases, and the commission has consulted with them on several points in connection with the administration of the new legislation.

Officers of the American Railroad Association have discussed car service matters with members of the commission and on Saturday, March 6, Commissioners Clark, McChord and Daniels conferred with Thomas DeWitt Cuyler, chairman, and Alfred P. Thom, general counsel of the Association of Railway Executives, W. W. Atterbury, vice-president of the Pennsylvania, W. B. Storey, president of the Atchison, Topeka & Santa Fe, and B. M. Robinson, president of the American Association of Short Line Railroads, regarding the regulations which the commission was to prescribe covering nominations for the Railroad Labor Board. Later in the day the standing committee of the Association of Railway Executives called on the full membership of the commission

and a general get-acquainted meeting was held, during which Mr. Cuyler, Mr. Thom and President Rea of the Pennsylvania spoke briefly expressing the desire of the railroad officers to co-operate with the members of the commission in any helpful way.

It is understood that no effort was made to discuss any particular question in detail. The executives had planned to inquire as to the wishes of the commission regarding the initiation of the rate case but the commission had made it unnecessary by issuing its notice on the day before announcing a general hearing on March 22 to consider its procedure under the rate-making section of the act.

The presentation to be made by the railroads at the hearing was to be discussed at a meeting of the executives' association in New York on Thursday of this week.

Southern Shippers Propose Plan of Co-operation on Rates

WASHINGTON, D. C.

A PLAN OF CO-OPERATION between the railroads and the shippers in the adjustment of rates to produce the 5½ per cent return made standard by the new law was proposed by a committee representing the Southern Traffic League at a conference on Wednesday, March 10, with Commissioners Clark, Daniels, Meyer, Hall and Eastman. The plan, which has been proposed in resolutions adopted by the league as explained to the commissioners by Charles E. Cotterill, general counsel for the league, contemplates in brief that the carriers and the shippers of the Southeastern territory shall get together and work jointly in the preparation of new tariffs designed to meet the standard set up by the law, to be presented to the commission, instead of the former plan by which the carriers would present tariffs to the commission which most of the shippers then would see for the first time and usually would consequently oppose as a whole because of certain objectionable features. Mr. Cotterill said that the shippers now realize that the general level of rates is largely fixed by the statute and that their particular interest lies in the proper adjustment and relationship and that they feel that this could be worked out jointly to much better advantage than in the form of a proceeding before the commission. He said the plan had the approval of many subordinate traffic officials of the southern railroads, although it had not been discussed to any great extent with the executive traffic officials. He said that it has been heartily approved by S. Davies Warfield, president of the National Association of Owners of Railroad Securities and also of the Seaboard Air Line, but that "unfortunately Mr. Warfield was not able to control the will of all the other executives" and the shippers felt that the executives would be more inclined to accept the plan if it were to be suggested to them by the commission.

Commissioner Daniels said that the plan appealed to him and that he had been particularly impressed with Director General Hines' recommendation in his annual report to the President for a continuation of something like the policy established by the Railroad Administration for giving the shippers an opportunity to participate at the outset in the consideration of rate problems by giving the shippers equal representation with the railroad managements on freight traffic committees. He raised the question, however, as to whether the state commissions might not be inclined to regard approval of such a plan by the interstate commission as showing a lack of consideration for the state authorities and asked whether it would not be possible for the shippers to obtain an expression from the southern state commissions. Mr. Cotterill said he thought there would be no difficulty

on that score for the reason that instances of conflict between state and federal authority as to rates in the past have often resulted from the pressure of shippers and that the Southern Traffic League, at least, had come to a realization that state and intrastate rates in general should be on the same basis. It was agreed that members of the committee should undertake to take the matter up with the southern state commissions with a view to having more definite information available at the hearing before the Interstate Commerce Commission on March 22.

Commissioner Clark expressed the heartiest approval of the plan proposed by the league and particularly of the spirit which prompted it, and Commissioner Hall remarked that he thought the same thing could be said for the commission. Mr. Clark said that the past had been a period of sharp conflict between individual railroads, individual shippers, and railroads and shippers and that under the new legislation we are coming into what he thought would be a new era. The foundation stone of this legislation, he said, is the public interest and it represents the last trial of private operation. If it fails there is no alternative but government ownership. The times, he said, are not most propitious for the new experiment because business is heavy and railroad facilities are limited because required additions have not been made on account of the war and because of government control and a new basis is fixed for the making of rates. He was confident that the degree of success that will attend the operation of the law will be in direct proportion to the extent to which it is possible to have co-operation between representatives of the railroads, the shippers, the state commissions and the interstate commission. He was very much pleased to note the spirit which had prompted the suggestion of the league, which, he said, apparently was not trying to get the lowest possible scale of rates, but one that would be right, and that the commission would welcome the co-operation of the representatives of the shippers as well as that of the railroads and it has for some time been trying to develop a plan of co-operation with the state commissions. While it would not be possible to give a definite answer for the commission regarding the proposal he thought it would be wise to take it up with the state commissions, and that personally he felt that if the shippers wanted to adopt such a plan it would be his duty to say to the representatives of the carriers that it was their duty to co-operate, because if the carriers and shippers cannot work out something and it becomes necessary for the commission to initiate rates it would be very likely to initiate something that neither side would like.

Commissioner Clark also said that he had frequently remarked to representatives of the railroads during the consideration of the law which has just been passed that it was fundamental and important that the railroads adopt a different policy in the future and take the shippers to a greater extent into their confidence. He hoped never to see again the spectacle of a tariff filed by carriers without telling any one about it, thereby arousing a storm of indignation which resulted in its suspension and in its withdrawal by the carriers because it was too hard to defend. Railroads should have a defense ready for each tariff before they file it and do their thinking and conferring with shippers beforehand. He thought the commission would be glad to do all in its power to induce the carriers to acquiesce in the proposal and that it would at least go as far as consistency and propriety would permit. He also expressed appreciation that the proposal had been brought forward promptly.

Representatives of the National Association of Railroad and Utilities Commissioners are to have a meeting in Chicago on Monday, March 15, to discuss the position to be taken by state commissions at the hearing before the Interstate Commerce Commission on March 22.

New Reclamation Campaign Instituted on the St. Paul

H. S. SACKETT, assistant purchasing agent of the Chicago, Milwaukee & St. Paul, is the author of a new plan being put into effect on the lines of that road, by means of which it is hoped to place reclamation work on a more satisfactory, efficient and economical basis. Mr. Sackett's plan comprises briefly the creation of a system reclamation committee at the road's general headquarters and the establishment of subordinate committees, composed largely of general and division officers, at each of the road's principal shops. The subordinate committees, aided by educational posters such as the one accompanying this article, are to supervise local reclamation work, assist in the conduct of educational reclamation campaigns and make studies of the reclamation of various groups of materials.

Mr. Sackett's plan is now being put into operation on the

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A track spike costs	\$0.03	A brake shoe costs	\$0.75
A ordinary 1-inch nut costs04	An engine oiler costs75
A track bolt costs06	A track shovel costs	1.00
A tie plate costs21	A lantern costs	1.05
An air brake hose costs \$2.35			

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Track spikes	\$107,400	Tie plates	\$306,273
Nuts	108,036	Brake shoes	92,213
Track bolts	67,496	Air brake hose	97,020

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Let's not lag behind. Let's keep "America" up in front and let's make the "Milwaukee" the best operated railroad on earth. All of us together can do it.

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THE RECLAMATION COMMITTEE

New Reclamation Campaign Instituted on the St. Paul

lines of the St. Paul. In the near future it is proposed to hold conferences at Chicago to discuss and develop this reclamation work, and it is proposed thereafter to hold these conferences from time to time and take up the subject of the reclamation of various groups of materials.

The organization as now constituted is as follows:

Main Committee.—H. S. Sackett, chairman, assistant purchasing agent; Macy Nicholson, assistant general manager; W. B. Foster, general superintendent, Lines West; H. R. Warnock, general superintendent motive power; A. G. Holt, assistant chief engineer; W. H. Penfield, engineer of track maintenance.

Traveling Representatives.—S. J. O'Gar, special inspector of locomotive materials; T. R. Morris, special inspector of car materials; Jas. Garrett, chief lumber inspector; H. W. Newlin,

special inspector of signal materials; P. H. Madden, special inspector of roadway materials.

Milwaukee Shops Committee.—F. J. O'Connor, chairman, general storekeeper; L. K. Silcox, master car builder; E. J. Brennan, superintendent motive power, Lines East.

Dubuque Shops Committee.—J. E. Dexter, chairman, district storekeeper; A. Young, assistant superintendent motive power, Lines East; M. Parkinson, district general car foreman.

Minneapolis Shops Committee.—J. T. Kelly, chairman, district storekeeper; J. E. Bjorkholm, assistant superintendent motive power, Lines East; F. A. Staples, district general car foreman.

Savanna-Tomah Shops Committee.—G. B. Woodworth, chairman, inspector of rails; J. Reinehr, superintendent frog and switch shops; G. T. Richards, bridge and building material storekeeper; B. C. Johnson, foreman, rail mill.

Miles City Shops Committee.—D. B. Rivers, chairman, district storekeeper; C. E. Brook, division master mechanic; E. S. Palmer, general car foreman.

Deer Lodge Shops Committee.—J. V. Miller, chairman, district storekeeper; E. Sears, division master mechanic; A. Strand, general car foreman.

Tacoma Shops Committee.—A. J. Kroha, chairman, assistant general storekeeper; F. Rusch, superintendent motive power, Lines West; F. D. Campbell, assistant master car builder.

Commission on Car Service

THE COMMISSION ON CAR SERVICE, which was organized by the American Railroad Association on March 1 to succeed the Car Service Section of the Railroad Administration, has spent a considerable part of its time since in conferences regarding its work under the new conditions.

The commission has issued a circular calling for the furnishing as heretofore of the principal reports of statistical information, including the weekly report of accumulations, the monthly statement of foreign freight cars on line, the semi-monthly statement of revenue freight car location, the semi-monthly report of cars containing company material, the report four times a month of average daily revenue freight car surpluses and deferred car requisitions, and the weekly report of coal mine operations and car requirements.

In reply to inquiries as to arrangements to be made for the interchange of empty coal cars between connections for return railroad fuel loading the commission suggested in a circular that all lines revert to the practice prevailing before federal control, which was that negotiations between lines for equipment for railroad fuel loading should be arranged by the interested lines directly with each other, but it was stated that it will be well to bear in mind the recent suggestions of the Interstate Commerce Commission, which were also sent out in another circular, that the uniform mine rating and coal car distribution rules promulgated by the Car Service Section be maintained in effect. Another circular stated that to facilitate the exchange of embargo information between all roads and the Commission on Car Service it seems advisable to establish a district system similar to that previously in effect under a general order of the Commission on Car Service. Such a plan contemplates the assignment of each road to a district, each district to be under the jurisdiction of a designated railroad representative and a road in each district has already been requested, as a temporary measure, to appoint a representative who, for the time being will receive and distribute information respecting embargoes. A road placing, extending, modifying or cancelling an embargo should, in addition to notifying its own agents and non-subscriber connections, promptly transmit by wire an exact copy of the notice to the designated district representative, who will notify the proper officer of each road in the district, the Commission on Car Service and the district representative of each other district. These district representatives will in turn notify all roads in their respective districts.

New Wage Conferences Begin at Washington

Railroad and Labor Representatives Meet to Handle Matter According to Transportation Act

WASHINGTON, D. C.

PRELIMINARY CONFERENCES between representatives of the railroad companies and of the railroad labor organizations regarding the pending wage demands which the President has insisted shall be handled in accordance with the provisions of the new transportation act, were begun at Washington on Wednesday, March 10.

At the request of the President, the arrangements for the conference were made by Director General Hines, to whom the labor organizations submitted a list of 17 representatives, the executives of the organizations that have been working in concert during the recent negotiations and one or two others.

The labor representatives were: W. S. Stone, for the engineers; Timothy Shea, for the firemen; L. E. Sheppard, for the conductors; N. G. Doak, for the trainmen; E. J. Manion, for the telegraphers; J. J. Forester, for the clerks; S. E. Heberling, for the switchmen; B. M. Jewell, of the Railway Employees' Department of the American Federation of Labor; M. F. Ryan, for the carmen; J. M. Burns, for the sheet metal workers; W. H. Johnston, for the machinists; J. F. McNulty, for the electrical workers; J. W. Kline, for the blacksmiths; Louis Weyand, for the boilermakers; A. E. Barker, for the maintenance of way employees; D. W. Helt, for the signalmen, and Timothy Healy, for the stationary firemen.

The representatives of the railroads were selected by the Association of Railway Executives after a meeting in New York on March 5 and their names were forwarded to Mr. Hines, as follows: E. T. Whiter of the Pennsylvania Railroad, chairman; G. E. Bates of the Delaware & Hudson; F. E. Blase, assistant general manager of the Baltimore & Ohio; J. W. Higgins of Railway Board of Adjustment No. 1; C. E. Lindsay of the New York Central; C. P. Neill, chairman of the Bureau of Information of the Southeastern Railroads; S. G. Strickland, recently federal manager of the Chicago & North Western; A. W. Trenholm, vice-president of the Chicago, St. Paul, Minneapolis & Omaha; and J. G. Walker of the Bureau of Information of the Eastern Railroads.

The director general formally opened the meeting by reading the President's letters to the executives and to the employees dated March 1 and by reading Section 301 of the transportation act, which provides that it shall be the duty of the carriers and their officers, employees and agents to exert every reasonable effort to avoid any interruption to the operation of any carrier growing out of any dispute between the carrier and its employees and further provides that all such disputes shall be considered and, if possible, decided in conference between representatives designated and authorized so to confer by the carriers or the employees or subordinate officials directly interested in the dispute.

He said that questions of procedure to be followed at the conferences were entirely between the representatives of the carriers and of the employees and he took it for granted that the conferees would decide themselves upon the place where their future meetings would be held. He added that the act made no appropriation available to defray the expenses of such conferences but he took it for granted that they would be borne just as they were in similar conferences prior to federal control of railroads by the interested parties themselves. He stated that until the wage records of the Railroad Administration were taken over by the Railroad Labor Board created by the transportation act as provided for in that act,

the Railroad Administration would place them at the disposal of the conferees.

The director general also stated that the wage questions involved were of very great scope and magnitude. He added that the President sincerely hoped that every practicable effort would be made to expedite consideration of these problems so that a final settlement would be reached as speedily as possible.

In conclusion, the director general explained that it was his view of the conference that it was in no sense an arbitration but that under the act the duty was laid upon the representatives of the carriers and of the employees themselves through conference and negotiation to make every possible effort to reach a settlement. He urged that if possible the conferees should agree themselves upon a disposition of the wage questions involved so that it would be unnecessary to refer the matter to the Railroad Labor Board, although under the transportation act it was to be understood that notwithstanding any such agreement the Railroad Labor Board was empowered on its own initiative under certain conditions to take jurisdiction over any wage matter.

"We are starting on a first experiment with a new plan," said Mr. Hines. "It is to the interest of both the carriers and the employees to make this experiment successful. I very earnestly hope that every possible effort will be made to reach a fair and just conclusion."

After hearing Mr. Hines at the morning session the conference committees held another meeting in the afternoon but adjourned subject to call pending the collection of certain desired information.

A meeting of the officers and chairmen of the brotherhood of maintenance of way employees was held at Chicago last week to consider its course of action in view of the decision of the other organizations to accept the plan of settlement proposed by the President and provided by the new law, but according to reports reaching here the deliberations were interrupted rather suddenly upon receipt of a telegram from J. B. Malloy, its vice-president, from Washington, stating in effect that any plan for an independent strike on the part of the maintenance of way organizations not only would not receive any support from the other organizations but would be repudiated by them and would be regarded as "throwing a monkey-wrench" into the entire plan for an adjustment of the pending wage demands.

Later the name of A. E. Barker, president of the brotherhood, was included in the list of the committee to meet the railroad representatives. The threatened strike of the maintenance organization set for February 17 and then postponed has been regarded here not only by the Railroad Administration but by other labor leaders as being in violation of the national agreement executed with the Railroad Administration, as the stipulated 30-day notice was not given, and considerable pressure was brought to bear on Mr. Barker to postpone his strike pending the negotiations with the President.

The Interstate Commerce Commission, after conferring with representatives of the railroads and of the labor organizations, on March 8 issued regulations governing the making and offering of nominations for the appointment by the President of members of the permanent Railroad Labor Board, which is to have headquarters at Chicago and which is expected ultimately to take jurisdiction of the wage matter. Under these regulations nominations will be made by groups

of the 16 principal railroad labor organizations and by the Association of Railway Executives. The regulations were promulgated in the following notice issued by the commission:

"Section 304 of the transportation act, 1920, provides for the creation of a Railroad Labor Board to be composed of nine members. Of these nine, three are to constitute the labor group representing the employees and subordinate officials of the carriers, and three are to constitute the management group representing the carriers, to be appointed by the President by and with the advice and consent of the Senate from not less than six nominees whose nominations shall be made and offered by such employees, and not less than six nominees whose nominations shall be made and offered by the carriers, in such manner as the commission shall by regulation prescribe.

"Section 305 of the same act provides that if either the employees or the carriers fail to make nominations and offer nominees in accordance with the regulations of the commission within 30 days after the passage of the act, the President shall thereupon directly make the appointment by and with the advice and consent of the Senate.

"The commission is required by regulation, formulated and issued after such notice and hearing as the commission may prescribe to the carriers and employees and subordinate officials of carriers, and organizations thereof, directly to be affected by such regulations, to determine the classes that shall be considered as coming within the term subordinate official.

"Inasmuch as the nominations must be made within 30 days after the passage of the act, it is obviously impossible to attempt to get expression from each employee or from the employees of each individual carrier. The only practical way in which effect can be given to the obvious purpose and intent of the law is to prescribe regulations under which the great mass of the employees of the carriers will be afforded opportunity to make and offer their nomination within the prescribed time.

"Inasmuch as the classes of officials that are to be included within the term subordinate official must be determined by the commission after notice to and hearing of the interested parties, it is impracticable in the short time within which the nominations must be made to hold such hearings and reach conclusions thereon. There can be no question as to the right of those who clearly come within the term employees to be represented upon and heard by the labor board. The uncertainty as to whether or not a class of so-called subordinate officials will be included within the term subordinate official as that term is used in the act warrants withholding at this time at least provision for nominations on behalf of so-called subordinate officials, because if such nominations were made and such an one were appointed it might later develop that the class from which he was chosen is in fact a class of officials and not of subordinate officials.

"The overwhelming majority, stated by those who are in a position to speak with confidence and authority to be more than 90 per cent of the railroad employees and subordinate officials, are members of or represented through certain organizations of employees. These organizations and their representatives have been recognized as authorized to speak for and represent the several classes of employees, by the railroad companies prior to federal control, by the Railroad Administration during federal control, and by the President in conference and negotiations conducted by him.

"Inasmuch as but three appointments can be made for the labor group it is deemed advisable to classify these representative organizations into groups with respect to the more or less analogous character of the services performed, aiming to have the nominees as nearly as possible representative of and conversant with the interests of all of the classes of employees and employment.

"For the purpose of making and offering nominations for original appointment as members of the labor group on the labor board the commission prescribes that the organizations of employees shall be grouped as follows:

Group 1:

Brotherhood of Locomotive Engineers,
Brotherhood of Locomotive Firemen and Enginemen,
Order of Railway Conductors,
Brotherhood of Railroad Trainmen,
Switchmen's Union of North America

Group 2:

International Association of Machinists,
International Brotherhood of Boilermakers, Iron Ship
Builders and Helpers of America,
International Brotherhood of Blacksmiths, Drop
Forgers and Helpers,
Amalgamated Sheet Metal Workers, International
Alliance,
Brotherhood Railway Carmen of America,
International Brotherhood of Electrical Workers,

Group 3:

Order of Railroad Telegraphers,
United Brotherhood of Maintenance of Way
Employees, and Railroad Shop Laborers,
Brotherhood of Railway Signalmen of America,
Brotherhood of Railway and Steamship Clerks,
Freight Handlers, Express and Station Em-
ployees.
International Brotherhood of Stationary Firemen and
Oilers.

"The accredited representatives of the organizations embraced in each group and duly authorized so to act shall agree among themselves upon nominees representative of the group, but the three groups must present a total of not less than six nominees.

"The nominations agreed upon by each group shall be signed by the representatives of the several organizations in the group or by some one authorized by them so to act and shall be transmitted direct to the President accompanied by a certificate that the nominations have been made in accordance with these regulations.

"The Association of Railway Executives is representative of approximately 95 per cent of the railroad mileage of the country and is authorized by the carriers members thereof to speak for and represent them in matters of this kind. The officers of that association have consulted with most of the carriers not members of the association and secured their assent to the presentation of nominees by the association.

"For the purpose of presenting nominees for original appointment on the labor board to represent the management group the commission prescribes that such nominations, not less than six in number, shall be made and offered by the Association of Railway Executives.

"The nominations so made shall be transmitted to the President, accompanied by a certificate that they have been made in accordance with these regulations.

"The act provides, in section 304, that any vacancy on the labor board shall be filled in the same manner as the original appointment. There is no specific provision for modification of the regulations prescribed by the commission, but the authority to prescribe regulations is believed in the absence of provision to the contrary, to also confer authority to modify them if and as occasion or necessity for such modification should arise."

Representatives of some of the organizations of so-called "subordinate officials" have been making very vigorous representations as to their right to be represented in some way on the labor board, although it has not been made clear as to whether they have expected to have one of the three members of the board assigned to labor selected by organizations representing a number of men so small in proportion to the number of employees. The situation is also complicated somewhat by the fact that the Railroad Administration did not employ the classification of "subordinate officials" used in the law, but designated men either as officers or as employees. The Train Despatchers' Association and the Order of Railroad Station Agents have been active in pressing the case of the "subordinate officials."

A similar question arose as to whether the short line rail-

roads were entitled to representation and President Robinson of the American Short Line Railroad Association when consulted by the commission said that the short lines were perfectly willing to have the railroads represented by the Association of Railway Executives.

The Interstate Commerce Commission on March 9 announced a hearing at Washington on March 15 for the purpose of its investigation as to what classes of officials shall be included within the term "subordinate official" and at the same time hearing will be had upon the question whether or not the regulations governing the making and offering of nominations for appointments as members of the labor group on the Railroad Labor Board shall be modified or supplemented. The commission ordered copies of its order sent to carriers, to "organizations of railroad employees and subordinate officials whose addresses are known" and to the public press.

The railroad labor organizations held a rather stormy meeting at Washington on Tuesday for the purpose of making their nominations.

President Barker of the maintenance of way employees announced in Washington on Tuesday that his organization had decided not to strike.

Small Change In Signal System Makes Material Saving

By R. M. Phinney

Assistant Signal Engineer, Chicago & Northwestern, Chicago.

A SAVING of at least \$4,300 per year has been made as a result of removing a small interlocking plant at Boone bridge on the Chicago & North Western and the substitution of automatic features without eliminating any of the safety factors or changing the operating conditions. This work was done at an estimated cost of \$900. The bridge is located west of Boone, Iowa, where the C. & N. W. crosses the Des Moines river and its valley. It is $\frac{1}{2}$ mile long and at its highest point is about 180 ft. above the water.

Even though this bridge is double tracked, only one train is allowed on it at one time, simply as a safety measure. Since its installation, the use of the bridge has been governed by stop signals located at each end. These signals were originally controlled by dwarf interlocking machines located in cabins, with suitable check-locking between them. When automatic signals were installed about 10 years ago the machine at the west end was removed and the signals at that end were then controlled electrically from the interlocking at the east end. Bridge watchmen were still retained at the west end. With the advent of the eight-hour day this arrangement required six men; three operators and three watchmen.

Recently the arrangement was changed in order to reduce operating expenses. The dwarf interlocking machine was removed and the home signals were made automatic, standing normally at stop, clearing upon the approach of a train, while the distant signals were made fixed. The clearing circuit operates on the principle of "first come, first served" as a train passes the distant signals. Only one signal can be cleared at a time. This is assured by controlling each signal through the opposing control relay. The circuits also break through the opposing signals at stop to give greater safety in case of improper operation. The signals are controlled through the track circuits on both tracks across the bridge. With this arrangement alone, a number of trains in one direction might hold up an important train in the other direction, or an important train might be held up by an unimportant one. To obviate this difficulty a control circuit was run to the dispatcher's office at Boone, four miles away. This circuit is designed to control direction when desired, but normally the

trains operate the signals automatically. If the dispatcher desires to give one train preference over another he operates a direction key, east or west as the case may be, and also pushes a button. This opens the control circuit of one signal and closes the other. The signal, however, does not clear until the train reaches the clearing track section.

An indicator is provided on the dispatcher's desk which indicates when selection has been completed. This indicator when energized remains so through its own contact and is de-energized automatically when the engine passes the signal onto the bridge; or the dispatcher may de-energize these



East End of Boone Bridge Showing Old Layout, Mechanical Home Signal Later Changed to Power Operated Signal

relays by opening the direction key in case he desires to cancel the selection.

It is impossible to effect selection while a train is on the bridge. Also, after either signal has been cleared by a train, the selection circuit cannot be operated as its circuit depends upon both signals being at "stop" at the time when the selection is made. Therefore, selection cannot be made by the dispatcher after a train has done so; the dispatcher is informed of such a situation when the indicator will not pick up.

If a following move is desired in one direction ahead of a



The Boone Bridge from the East Abutment

train in the opposing direction, the dispatcher must, after the indicator drops for the first train, hold the push button down until the indicator picks up, when the selection is effected.

There is a minimum time limit of two minutes for a train to cross the bridge. The dispatcher can check this time limit for a train by pressing the button as would be done for a following train and timing the interval between the dropping of the indicator, caused by the engine passing the signal, and the picking up of the indicator when the rear of train passes

out of the section. Of course allowance must be made for the length of the train.

The direction key and push button are standard telephone apparatus mounted on the despatcher's table. A dry battery is used since the selecting circuit is required infrequently and also because there was no convenient place to locate a soda battery. Telephone communication is provided in the cabins at each end of the bridge for trainmen so that they can get permission from the despatcher to pass the signal at stop in case of necessity.

These changes have made it possible to eliminate the three operators at the interlocking, thus saving an average of \$360 per month. It was necessary, however, to retain the three watchmen to patrol the bridge.

Cost of Acquisition of Lands Must Be Included in Valuation

WASHINGTON, D. C.

THE UNITED STATES SUPREME COURT on March 8 rendered an important decision affecting the railroad valuation proceedings by reversing decrees of the court of appeals and of the supreme court of the District of Columbia which had in effect dismissed the petition of the Kansas City Southern for a writ of mandamus to require the Interstate Commerce Commission to find the present cost of acquisition of its carrier lands. The case is of importance because it will require the commission to take into consideration the cost of acquisition of lands in the other cases. In the Texas Midland case the commission said that present value of lands is stated by ascertaining the number of acres and multiplying this by a market value determined from the present fair average market value of similar adjacent and adjoining lands, making due allowance for any special value by reason of the peculiar adaptability of the lands for railroad use, but adding nothing additional for the expense of acquisition, for severance damages, for engineering or interest during construction. The same method was also employed in valuing the lands of the Kansas City Southern.

The carrier introduced evidence to show land values in one county along its lines which did not vary in essential particulars from testimony of a like character which had been introduced in the Texas Midland case. After receiving this testimony the commission declined to permit the introduction of evidence of the same kind for other lands of the carrier.

At the final hearing in the Kansas City Southern case counsel for the railroad filed an affidavit and motion asking leave to present the further evidence, which motion was denied by the commission. Thereafter a mandamus proceeding was brought in the Supreme Court of the District of Columbia to compel the commission to receive evidence to enable it to ascertain and report separately the "present cost of condemnation and damages or of the purchases in excess of original cost or present value" of the lands included in the rights of way, yards and terminals of such carriers. The railroad rested its case upon the provision of Section 19-A of the valuation act, which provides that the commission's investigation and report shall state in detail and separately, present improvements, original cost of all lands, rights of way and terminals owned or used for the purpose of a common carrier, ascertained as to the time of dedication to public use and the present value of the same, and "separately the original and present cost of condemnation and damages or of purchase in excess of such original cost or present value."

The Supreme Court of the District of Columbia dismissed the proceedings and an appeal was taken to the Court of Appeals. The case was argued before the Supreme Court on December 10 by counsel for the Kansas City Southern and the

chief counsel for the Interstate Commerce Commission and a brief *amici curiae* was filed for the Presidents' Conference Committee on behalf of all the railroads.

The lower court was directed to issue the writ of mandamus asked for.

The court said in part:

"It is true that the commission held that its non-action was caused by the fact that the command of the statute involved a consideration by it of matters 'beyond the possibility of rational determination,' and called for inadmissible assumptions,' and the indulging in 'impossible hypotheses' as to subjects 'incapable of rational ascertainment,' and that such conclusions were the necessary consequence of the Minnesota rate cases.

"We are of the opinion, however, that, considering the face of the statute and the reasoning of the commission, it results that the conclusion of the commission was erroneous—an error which was exclusively caused by a mistaken conception of the commission of its relation to the subject, resulting in an unconscious disregard on its part of the power of Congress and an unwitting assumption by the commission of authority which it did not possess. And the significance which the commission attributed to the ruling in the Minnesota rate cases, even upon the assumption that its view of the ruling in those cases was not a mistaken one, but illustrates in a different form the disregard of the power of Congress which we have just pointed out, since, as Congress indisputably had the authority to impose upon the commission the duty in question, it is impossible to conceive how the Minnesota rate ruling could furnish ground for refusing to carry out the commands of Congress, the cogency of which consideration is made particularly manifest when it is borne in mind that the Minnesota rate cases were decided prior to the passage of the act in question."

Wire Capacity Increased by Modern Brevity Methods

BY THE EMPLOYMENT of modern brevity methods of coding the Grand Trunk has been enabled to handle a greater message traffic with a smaller force and in less time than was formerly the case. In one relay office there has been a decrease of two operators and a further decrease of one hour a day per operator, with an average increase of nine messages handled hourly by each operator. The saving represented is \$425 monthly, or \$5,000 yearly in this one office.

Many railroad men have been more or less opposed to coding, due very largely to the conditions in vogue under the old coding methods in use in the old rate-cutting days—when messages were codified more for secrecy than for economy, little attention then being paid to the time taken in coding in order to disguise thoroughly the meaning intended. Economy in tolls was then a secondary consideration. At that time it was not considered practicable to codify a message transmitted over railroad wires unless secrecy was desired.

That the old theory no longer holds true is well illustrated by what has been accomplished on the Grand Trunk, as shown by the figures below, which represent one day's performance by the car-tracing clerk in the office of the superintendent of transportation at Toronto, Ont.:

Number of		June 10, 1919.
Messages sent	.....	136
Perfect messages	.....	117
Other messages	.....	13
Characters in all messages	.....	*6,091
Characters saved by coding	.....	1,576
Could have saved by further coding	.....	65
Could have been saved by elimination	.....	122
Messages that could not have been coded	.....	48
Messages that could be coded	.....	82
Messages coded, per cent.	.....	78 or 96

* A character is a letter or a figure.

The figures shown represent outgoing messages only. It will be noted that code words were used in 78 out of a possible 82 messages, or 96 per cent. It will also be noted that while there were 48 messages in which code words could not be employed, there were only 122 characters in all these messages that could be termed unnecessary. This performance is a true representation of the daily work accomplished by one clerk, the number of messages sent increasing or decreasing daily according to the number of cars being traced.

In refutation of the argument that operators cannot send messages in code as quickly as in plain English, it is interesting to study the results accomplished in one relay office of the Grand Trunk for the month of June, 1919, as compared with June, 1918. The comparative figures are contained in the following table:

	Month of June		In-crease	De-crease
	1918	1919		
Operators employed.....	10	8	....	2
Hours worked per operator per day....	9	8	....	1
Hours worked per operator per month..	225	200	....	....
Hours worked, all operators, per month..	2,250	1,600	....	650
Days worked per operator per month....	25	25	....	....
Days worked, all operators, per month..	250	200	....	50
Messages handled per operator per hour..	22	31	9	....
Messages handled per operator per day..	198	250	52	....
Messages handled per operator per month	4,965	6,257	1,292	....

Total increase for 8 operators per month..... 10,336

It will be noted that there was a decrease of two operators and that there was a further decrease of one hour a day per operator. As there were eight operators employed, this decrease is equal to eight hours a day, or the full time of one operator per day, which makes the total decrease in this relay office equal to the full time of three men. Notwithstanding this reduction in help and in working hours, this office shows an average increase of 9 messages handled by an operator per hour, making the total increase for the 8 operators for the month 10,336 messages. In percentage the figures are:

	Per cent
Decrease in help.....	20
Decrease in working hours.....	11
Increase in messages transmitted.....	26

The importance of this showing is augmented by the fact that it represents a saving of \$425 a month, or \$5,100 a year; in this one office.

Of all the messages transmitted over 35 per cent contained code words, showing that instead of slowing up the service they assisted in speeding up action on the wires. The analysis shows that to accomplish this only one-half of the maximum efficiency of the coding system was employed.

The Dempsey code, the one referred to in the foregoing, which has been in use on the Grand Trunk for two years past, provides for the needs of all departments of the road and is used by all departments. Certain of these departments have those portions of the code which are most frequently used in their work printed on loose leaves, in large type, so as to be easily read when posted on or near the user's desk. All departments are instructed to make the fullest practicable use of the code. The code is used in messages to and from agents at points off the line, where telegrams have to be paid for, and in this way the cost of transmission has been considerably reduced.

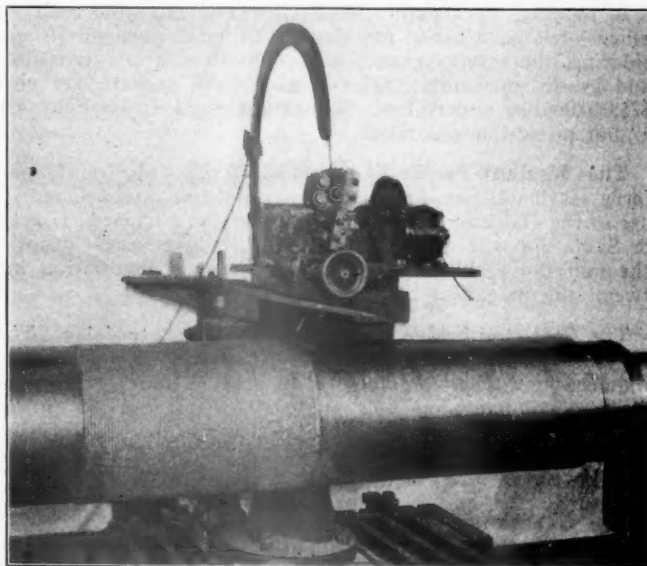
The compiler of the code makes an educational tour over the Grand Trunk lines once a year with a view to educating officers, agents, clerks and others in the use of the code, and giving advice where necessary to clear up difficulties. This work supplements the supervision of the traffic bureau of the telegraph department, thus promoting the most intelligent and convenient use of the abbreviations. While the code was prepared originally for the purpose of maintaining secrecy in the transmission of telegrams, it is now used so extensively in non-secret communications that the original purpose has become a secondary one.

Automatic Arc Welding Machine

AUTOMATIC ARC WELDING is now accomplished by a device, perfected by the General Electric Company, which will soon be put on the market. The welder is for use with the regular welding set, and is designed to take the place of a hand controlled electrode. It consists of a pair of rollers called feed rolls driven by a small direct current motor, which draw in and deliver to the arc a steady supply of wire, maintaining automatically the best working distance. The machine is controlled from a small panel.

The welding head is held by a suitable support with a certain amount of hand-regulated adjustments and consists of a steel body, carrying feed rolls and straightening rolls, both of which are adjustable for various sizes of wire. The arm is supported on a gear box, together with the motor. This box contains gears which give three gear ratios, thus extending the range of the device while allowing the motor to operate at its most favorable speed.

The control panel carries an ammeter and voltmeter for the welding circuit as well as rheostats, a control relay, and the contractors and switches for the feed motor. It is pos-



Machine In Position for Building Up a 14-in. Shaft. The Shaft Diameter Was Increased $\frac{3}{8}$ in.

sible to start and stop the equipment from the work by a pendent push button, but adjustment of the speed conditions must be made from the panel.

The adjustment for arc conditions by regulation of the speed of the feed motor as the arc voltage varies is taken care of by the panel equipment. The result is a steady arc and more uniform and faster work than is possible with a hand-controlled arc.

The whole apparatus is mounted on a base which can be bolted to any form of support. Thus a great variety of working conditions can be met. Provision must be made for carrying the arc at uniform speed along the weld. For straight seams a lathe or planer bed may be used, and for circular ones a lathe or boring mill, local conditions, of course, dictating the methods to be followed.

The device should be especially valuable where a large amount of routine welding is to be done, as it is claimed that it will operate with from two to six times the speed which can be obtained by skilled welding operators. It is adaptable to welding seams of tanks and plates, rebuilding worn or inaccurately turned shafts, rebuilding worn treads and flanges of wheels and many other kinds of work.

General News Department

The Atchison, Topeka & Santa Fe has discontinued the operation of the Port Boliver & Iron Ore Railroad, extending from Long View, Tex., to Iron City, a distance of about 30 miles.

The Interstate Commerce Commission has announced a hearing at Washington on March 24, before Commissioner McChord, on the application of the American Railroad Association for an extension of time in which to complete the work of equipping freight cars with safety appliances.

The Western Pacific has notified the Southern Pacific that the arrangement made by the United States Railroad Administration, under which the two roads used the Western Pacific tracks between Wells, Nev., and Winnemucca, a distance of 200 miles, is now void, and that the practice must be discontinued.

A meeting at Detroit, Mich., between city and railroad officers has been called for March 13 for the purpose of considering the city's request that numerous grade crossings and grade separation projects, which are expected to cost \$75,000,000, be undertaken. A meeting was held on February 17 but no action was taken.

The Western Pacific has established its own freight and ferry service at San Francisco, Cal., and has discontinued its use of the Oakland terminals. Whether the Atchison, Topeka & Santa Fe will continue to handle its passenger business through the Oakland mole is a subject of negotiation between the managers of the respective lines.

The Castleton bridge project is still subject to delay. The act of Congress providing for the construction of the bridge required it to be completed this present month; and the railroad company has now applied to Congress for an extension of time; but at Washington it has met people from Albany, Troy and Schenectady, who are asking the government to refuse the extension.

The International Brotherhood of Firemen and Oilers has filed a petition at Topeka, Kan., asking the Kansas Industrial Relations court to investigate the working conditions and wages of the members of the brotherhood in Kansas. All the railroads operating in Kansas have been made defendants. While no wage demand is made in the petition it is understood that an increase in the present rate will be asked.

The Mechanical Section of the American Railroad Association has announced in Circular S-III-101 that supplement No. 1 to the Rules of Interchange, effective March 1, 1920, will soon be ready for distribution. This includes changes covered by letter ballots and the modifications recommended by the Committee on Tank Cars and by the Arbitration Committee. The circular also announces that the effective date of section G of Rule 3 has been extended to October 1, 1920.

The first trains to carry passengers on the new Wichita Falls, Ranger & Fort Worth were operated on March 1 between Ranger, Tex., and Edhobby, a distance of 12 miles. The usual boom in the sale of town-lots at the terminal of a newly-opened line took place in Edhobby, 30 per cent of the town-lots being sold. It is expected that the Wichita Falls, Ranger & Fort Worth will be completed to Jakehamon, 20 miles south of Ranger, by March 10.

W. R. Wortham, an attorney at Paris, Tex., has been appointed receiver for the Paris & Mt. Pleasant. This line, which was built in 1910, extends from Paris, Tex., to Mt. Pleasant, a distance of 50 miles. The road's indebtedness is about \$750,000, including \$600,000 in bonds issued for its construction. The property was valued at \$1,000,000 when con-

structed. The receiver announces that receiver's certificates will be issued at once to raise money to put the road in good operating condition.

The Senate on March 8 adopted a resolution proposed by Senator Jones of Washington, calling on the Secretary of the Interior to advise the Senate what steps have been or are being taken to develop and settle the country traversed by and tributary to the government railroad in Alaska, what steps have been or are being taken to develop traffic over the road, whether any organization has been created for these purposes, and if not, why not.

The first annual meeting of the National Federation of Construction Industries will be held at Chicago, on March 24 and 25. Among the subjects which will be discussed at the meeting are: freight traffic as affecting construction industry, freight rates, economical purchasing and handling, standardization of the construction industry, foreign trade, financial relation, jurisdictional award, housing and Americanization. John C. Frazee is executive secretary, with office in the Drexel building, Philadelphia, Pa.

A temporary injunction to prevent Louis L. Emmerson, secretary of state, and Attorney-general E. J. Brundage, both of Illinois, from attempting to collect the annual franchise fee, provided for in the law of 1919, from the Illinois Central, was granted in the Sangamon Circuit Court on February 26. Attorneys for the railroad contend that the law, which was passed by the last legislature, is not applicable to the road inasmuch as the road pays the state a seven per cent fee on its gross earnings under its articles of incorporation.

The strike of seamen at the Straits of Mackinaw, which has been in effect for several weeks and which affects the car ferries of the Michigan Central, the Grand Rapids & Indiana and the Duluth, South Shore & Atlantic, is assuming serious proportions. The seamen went on strike for increased wages which their employers do not feel are reasonable. Freight is piling up on the wharves and unless the strike is settled soon, traffic will become seriously congested. The railroads involved have undertaken extensive re-routing measures to avoid ruining perishable freight.

Railroad taxes amounting to approximately \$1,255,500, have been received by the state treasurer of Minnesota. These amounts are 5 per cent of the gross earnings of the reporting railroads in Minnesota for the six months ending December 31, 1919. The roads which have completed payments on their taxes for the last six months of 1919, are: the Duluth & Iron Range, \$230,962; the Chicago, Rock Island & Pacific, \$89,769; the Minneapolis & St. Louis, \$133,097; the Chicago, Burlington & Quincy, \$21,023, and the Duluth, Missabe & Northern, \$580,647.

A British Columbia sub-committee of the Canadian Railway Association was organized at a meeting attended by representatives of the nine railways operating in British Columbia, Can., held at Vancouver, B. C., recently. F. W. Peters, general superintendent on the Canadian Pacific at Vancouver, was elected chairman of the sub-committee, and Albert Davidson, commercial agent of the Grand Trunk Pacific at Vancouver, was elected secretary. The new British Columbia committee is a sub-committee of the Western Operating and Transportation Committee of the Canadian Railway Association, but reports to the main association at Montreal, Que.

Bids have been requested for the renewal of the superstructure of the Cincinnati, New Orleans & Texas Pacific bridge over the Ohio river at Cincinnati. The old single-track superstructure is

to be replaced by a new superstructure for double track and the grade of the track is to be raised four feet. No change is to be made in the substructure except as is necessary to accommodate the new trusses and the change in grade. The new superstructure will consist of simple spans of varying lengths up to a maximum of 514 ft., but the cantilever method of erection will be used as the plan of reconstruction does not permit of the use of falsework in the river. About 14,000 tons of steel will be required. The bids will be received by Ralph Modjeski, consulting engineer, Chicago, on April 1.

Senator Ransdall of Louisiana has introduced in the Senate a bill directing the Interstate Commerce Commission to establish preferential rates on shipments of cotton based on the cubic contents of the bale and providing that in reaching its decision the commission shall take into consideration the density of the bale, the amount of space it occupies, its uniformity in size, character of its covering as a safeguard against damage by fire and other points that seem fairly to entitle it to favorable discrimination. The Senator said that the object of the bill was to secure fair treatment for interstate shipments of high density, gin-compressed cotton, both round and square bales.

American Railway Express Company officers at Chicago, basing their remarks on the deficit incurred by the company during January, assert that the government will be called upon to pay the company approximately \$10,000,000 as reimbursement, authorized by the new Transportation Act. The American Railway Express Company is a consolidation of the American, the Wells Fargo, the Adams and the Southern Express companies, and Chicago officers say that there will be no dissolution of this consolidation if it can be avoided. The consolidation has cut down the overhead expenses greatly, according to W. J. McGreevy, secretary to the vice-president of the Central department, and the express company wishes to continue this economical program. The company's business is approximately \$28,000,000 a year, conducted at an annual loss under present rates of \$10,000,000.

C. F. Richardson, president of the American Federation of Railroad Workers, an independent organization, with headquarters at Chicago, in a recent statement addressed to members of Congress, made a series of charges against officers of the United States Railroad Administration, intimating that there was a conspiracy between the officers of the American Federation of Labor and those of the Railroad Administration. Mr. Richardson's statement alleges that from 65 to 95 per cent of the members of the American Federation of Labor were literally "handed over" to those organizations by a form of conscription exercised by the Railroad Administration. It is alleged in the statement that official letters and communications addressed to the Railroad Administration from the Federation of Railroad Workers were turned over to rival organizations of the American Federation of Labor for propaganda purposes.

New York Railroad Club

"The automatic train control problem" will be the subject of the March meeting of the New York Railroad Club to be held at the Engineering Societies' Building, 29 West 39th street, New York, on Friday evening, March 19. A paper will be presented by H. S. Balliet, assistant terminal manager, Grand Central Terminal, New York city. Mr. Balliet was a member of the Railroad Administration's committee on this subject.

Steam Railroad Electrification

S. T. Dodd, engineer of electrification of the General Electric Company, Schenectady, N. Y., presented a paper on "The Present Status of Steam Railroad Electrification," at a joint meeting of the Chicago Section of the American Institute of Electrical Engineers, the Electrical and Mechanical sections of the Western Society of Engineers, and the Western Railway Club at Chicago, on March 4. Mr. Dodd based his remarks largely on data obtained from various installations and from papers presented by authorities on the subject at previous meetings of various engineering societies.

Railway Business Association Annual Dinner

The theme of the dinner of the Railway Business Association to be held at the Waldorf-Astoria Hotel, New York, on March 31, will be "The Resurrection of Our Railways."

The speakers for the evening have been announced as follows: *Introductory*; Alba B. Johnson, president of the Railway Business Association.

American Destiny; Frederick J. Koster, president of the California Barrel Company.

A Continent Marking Time; George W. Simmons, vice-president of the Simmons Hardware Company, St. Louis.

Partners in Prosperity; Joseph S. Frelinghuysen, United States Senator from New Jersey.

Two Cent a Mile Fares in Illinois

A suit to restore the two-cent-a-mile basis of computing railroad fares in Illinois was filed with the Public Utilities Commission of that state at Springfield, Ill., on March 2, by Attorney Meyer J. Stein, of Chicago. Attorney Stein contends that with the return of the railroads to private control, the state rate of two cents a mile—set aside during federal control—is automatically restored. His suit is to recover \$2.30 excess fare paid by him between Chicago and Springfield, on March 1. Attorney Stein declares that the Supreme Court of the United States has proclaimed the validity of the Illinois state rates in a test case heard prior to the war. No action was taken by the commission for the reason that the Transportation Act recently passed by Congress provides that present rates shall remain in effect without change until September 1.

The N. Y. & N. S. Traction Co.

A railroad buried so deep in ice that the owners are ready to give it away, believing that course to be more practicable than to try to uncover the rails, is one of the curiosities of the modern business world as illustrated in the New York City newspapers last week. This line is the New York & North Shore Traction Company, operating trolley lines from Flushing to Whitestone, and to Hicksville in Nassau County (Long Island), N. Y. George A. Stanley, president of the company, has offered his line to the City of New York as a gift if the city will operate the road at a five-cent fare. He made this proffer at a hearing before the Public Service Commission for the First District called to investigate the action of the company in discontinuing service over all its lines. He said that at many points the company's tracks were buried beneath several inches, and in some cases several feet of ice, and that the company had no money with which to remove the encumbrances. He is willing, however, to resume service immediately after the ice shall have melted.

George A. Cullen Elected Vice-President of North American Fruit Exchange

George A. Cullen, passenger traffic manager and director of agricultural development of the Delaware, Lackawanna & Western, has been elected vice-president of the North American Fruit Exchange, Inc., 90 West street, New York, effective April 1.

The North American Fruit Exchange is now in its tenth year of operation. It maintains 119 sales offices in the United States and foreign countries and is engaged in the distribution and sale of fruits and vegetables in carload shipments, handling approximately 25,000 carloads of produce annually. It furnishes to its clients, consisting of various organizations of growers and individual producers in all parts of the country, a service consisting of day to day advice on market conditions, protection against irregular practices, supervision in the matter of grading, packing and shipping, assistance in securing suitable cars, etc. In its offices it maintains a salaried and bonded sales force and secures for the growers confirmed f. o. b. orders for car lots of fruits and vegetables daily. In short, it seeks to work out a scientific system of distribution for the commodities mentioned.

Besides being passenger traffic manager and director of agricultural development of the Lackawanna, Mr. Cullen was one of the originators and founders of the county farm

bureau system in America. During the war he served in Washington as the chief of a section of the United States Food Administration and was for a time in charge for the Railroad Administration of establishing and operating consolidated ticket offices.

He will devote his entire attention to the North American Fruit Exchange and its affiliated companies.

Unification of Terminals at Chicago

The extent to which the various measures tending towards the unification of terminals in the larger cities, inaugurated during federal control, shall be continued following the return of the roads to private competitive operation has been receiving the attention of railway officers, particularly with reference to the situation at Chicago. Following a recent meeting of the Association of Railway Executives in New York City at which this subject came up for informal discussion, the Chicago situation has received special attention. While some of the measures inaugurated under federal control in Chicago may not be entirely desirable under private ownership, it is the general opinion, in view of the many advantages, unified operation should be continued for a time. While officers of a few roads have indicated a desire to put into effect more or less radical changes, it is probable that no definite steps of importance will be taken until opportunity has been afforded to ascertain the results which will follow the working out of the present system under the new form of control.

Standard Cars and Engines Allocated and Financed

Director General Hines announced on March 3 that all the equipment that was purchased by the Railroad Administration for the various railroads, consisting of 100,000 freight cars and approximately 1,930 locomotives, has been finally allocated and accepted by the various roads. The Division of Finance advises that where railroads were able and willing to pay for the cost of such equipment in cash, this has been done; that in the other instances the government has accepted the equipment trust obligations of the individual carriers whereby the cost is to be repaid in 15 annual installments at 6 per cent interest. Equipment trust obligations have been accepted from 74 of the railroad companies.

These are the obligations of the individual carriers, aggregate about \$360,000,000, and are in such form as to enable the government, should it so desire, to carry out the plan for the creation of a National Equipment Corporation that would issue its own obligations and through the sale of such obligations the government be reimbursed. If it should be deemed desirable, however, for the government to sell the individual obligations of the carriers, it is in a position to do so; or if it prefers it can hold them, receiving the annual payments.

The condition of the money market in the past several months has not been such as to warrant the carrying through of the National Equipment plan. Just the method that the government may pursue in the sale of these obligations, should it decide not to carry the indebtedness itself, will of necessity be dependent on market conditions.

Valedictory of the Safety Section

Bulletin No. 13 of the Safety Section, Division of Operation, United States Railroad Administration, reports that for the month of December the number of employees killed on railroads operated by the government was 249, as compared with 242 in December, 1918, and of injured 11,903, as compared with 11,776. With the bulletin are the usual supplementary statistics, together with summaries showing killed and injured, employees and other persons, for each month for the two calendar years 1918 and 1919.

A. F. Duffy, manager of the Safety Section, calling attention to the great accomplishments in safety during 1919, when the safety organizations were fully functioning, as compared with the slower progress in 1918, calls attention to the less favorable records made in December, 1919, and says:

"At the beginning of that month the realization that the dissolution of the Railroad Administration was probably a matter of days began to exert a baneful influence on the employees. In fact, the status of the safety departments of some of the roads practically reverted to that of the early months of 1918. There

was everywhere a noticeable falling off in committee attendance, a lack of interest in turning in recommendations, and, in the discharge of duties a lessening of that vigilance which, inspired by safety precepts and constant exhortation on the part of the safety representatives, had, up to that time, saved so many lives and prevented so many injuries."

Mr. Duffy thanks the men who have co-operated with him, declaring their efforts and accomplishments remarkable. "The work in which we have been engaged is in its infancy. I look forward to the time when SAFETY, having reached a ripened maturity will be recognized as one of the most important factors in industrialism; when safety experts will be acclaimed as men of high profession, honored by their countrymen as benefactors."

Plans for the Atlantic City Conventions

The American Railroad Association and the Railway Supply Manufacturers' Association have announced plans for the annual convention to be held in Atlantic City, June 9 to 16, inclusive. The reports of committees of Section III—Mechanical—investigating locomotive matters will be received and discussed on Wednesday, Thursday and Friday, June 9, 10 and 11, and reports of committees on car matters will be taken up on Monday, Tuesday and Wednesday of the next week. The sessions of the Mechanical Section will be held in the morning to give time for viewing the exhibits. The Purchases and Stores Section of the American Railroad Association will hold its annual meeting on June 14, 15 and 16, in the Hippodrome.

The Railway Supply Manufacturers' Association has arranged to have exhibits in the balcony over the main building on Young's pier, which will make the total exhibit space approximately 100,000 sq. ft., an increase of 6,500 sq. ft. over 1919. Applications have already been made for practically all the available booths and a large number of new companies will be represented. All entertainment features will be held on the pier, as was done in 1919.

Further Troubles with Snow

The storm of March 5, 6 and 7, consisting of heavy rain, followed by snow, very low temperatures and high winds, made trouble for the railroads in northern New England, eastern New York, Massachusetts and Connecticut, and to some extent in New Jersey and Pennsylvania. In many places in New England the experiences were declared the worst of the Winter. The heavy masses of snow and ice which resulted from the earlier storms (noted in the *Railway Age* of February 20, page 527, and March 5, page 676), had melted but little and the difficulties of dealing with the new snow were, therefore, greater than those of the preceding weeks.

At Boston the storm changed from rain to snow on Saturday morning, and by Saturday evening blockades were reported in all directions; and many telegraph lines failed. Many important passenger trains were omitted and others were sent out with a minimum number of cars. On Monday more than 100 towns and villages in New Hampshire and Maine were reported as cut off, some of them being also without telegraph facilities. Through traffic between Boston and Portland was suspended for 36 hours or more. In the White Mountains tracks were covered in some places 25 ft. deep, and even deeper. Trains from the Central Vermont were sent to Boston by way of Greenfield, Mass., a detour of 50 miles or more. Boston reporters who called on receivers of produce got reports of "hundreds of carloads" of fruits and vegetables being frost-bitten. The Boston Chamber of Commerce reported that 2,500 volunteer shovelers were aiding the railroads in the region north of that city. At Concord, N. H., the employees of the railroad shops suspended work and went out to help the shovelers. The mayor of that city proclaimed a holiday and called on all citizens to help in clearing the streets. A similar course was followed in Pittsfield, Mass., and other places.

Passenger trains which could not make progress were, in most cases, held at stations where the passengers could be made comfortable; but in some cases sleeping cars (and their occupants) remained in one place all night. On a branch of the Delaware, Lackawanna & Western near Montrose, Pa., food was carried to the passengers on a snowbound

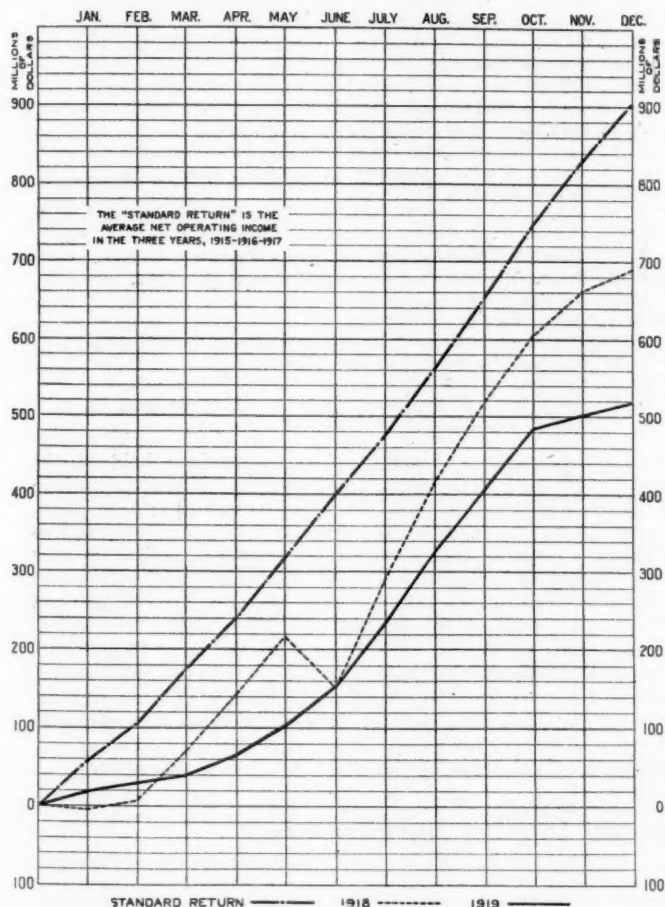
train by men on snowshoes. In eastern Pennsylvania floods caused much delay to trains.

At New Haven, Conn., the storm came on earlier and there was a general suspension of business on Saturday afternoon. The velocity of the wind was 50 miles an hour. In New York City there was considerable snow and the wind rose to 72 miles an hour.

On Wednesday, the 11th, the Boston & Maine and the Maine Central announced the full resumption of passenger service on all lines after "a storm-siege lasting, intermittently, for two months."

Net Operating Income in 1919

The chart made by the Bureau of Railway Economics shows the net operating income of the Class I roads in 1919, compared with the average in the test period (1915-1916-1917) on which



Net Operating Income, Cumulated by Months, 1918 and 1919, Compared with Standard Return, Class I Railways of United States.

governmental rental is based. The table gives the figures on which the chart is based:

NET OPERATING INCOME OF RAILROADS (CLASS I) IN 1919, COMPARED WITH TEST PERIOD (JUNE 30, 1914-JUNE 30, 1917)

Month	Standard return	Earnings in 1919
January	\$56,613,000	\$18,783,702
February	47,934,000	10,106,268
March	68,251,000	10,842,608
April	67,289,000	26,115,214
May	77,385,000	39,462,367
June	82,550,000	52,270,702
July	75,341,000	77,176,933
August	86,860,000	92,396,636
September	91,273,000	77,763,023
October	94,333,000	76,397,213
November	83,536,000	21,966,992
December	73,282,000	12,781,342
Total	\$904,647,000	\$515,793,287

The Square Deal; Team Work; Harmony

E. E. Loomis, president of the Lehigh Valley, in his circular to employees on the resumption of direct operation of the road, March 1, says:

"The co-operation and friendship between the management and those who work for it has been one of the happiest traditions of this company. It is my purpose to do everything possible to foster and continue this relationship. . . . To meet the nation-wide demand for increased production we must spare no effort to give the best that is in us in order to maintain the Lehigh Valley's excellent record. Every employee is assured a square deal, but there must be teamwork and harmony if we are to enjoy the satisfaction that goes only with work well done. We are going to count on you."

In a letter to officers, Mr. Loomis goes more into detail. This letter, which was sent to all officers exercising supervision, including yardmasters, roundhouse foremen, road foremen of engines, roadway supervisors, chief clerks, agents at important stations, says:

"It is reported that some roads at the end of Federal control propose to make drastic changes in the personnel of their organizations. This is not to be the case on the Lehigh Valley."

"We want all of our employees, however, to work earnestly while on duty to produce the highest degree of efficiency, and it is urged that you give your best efforts to obtain this result. In this connection, you should remember that a man directing others must be able to anticipate their grievances and meet them in a spirit of justice and fair play. He should first be sure he is right, then firmness must be one of his strongest characteristics. A weak and vacillating policy never wins respect from subordinates and no supervisory officers can achieve results without their respect."

"The management expects you to do your part towards maintaining a spirit of good-fellowship with its employees and at the same time be prepared to handle their problems without allowing them to develop into controversies."

Wireless Telephone Experiments on the New York Central

Major General George O. Squier, chief signal officer of the United States Army, well-known electrical inventor, has been making experiments on the Harlem and Putnam divisions of the New York Central with a radio telephone, in which the direction of the waves is guided by the telegraph or telephone wires strung along the line of railroad on poles, and by utilizing this aid of the wires he is able to send a number of communications along the line simultaneously, and he speaks to and from moving train. An account, in considerable detail, is given in the New York Central Magazine for February.

General Squier calls his system "wired wireless" and successful experiments were made between Elmsford, N. Y., and Millerton, 78 miles. The wire circuit which was made use of was at the same time being used for sending Morse messages (on two wires) and long distance telephone conversations.

Major General Squier began his researches ten years ago and received his basic patent January 3, 1911. He has renounced his rights in the invention, dedicating it to free use by the public. Tests have been made for a number of years, but the most important ones were those held early last month on the New York Central's long distance telephone wires. The tests are believed to have proved the feasibility of superimposing a number of additional telephone circuits on one pair of wires by using a different frequency of current. The wired wireless talk in this test was carried on for one hour without interruption and the transmission was excellent. The tests were made from a government experimental car stationed at Millerton, under the direction of Lieut. R. D. Duncan.

"Wired wireless" is a system of guiding radio currents by means of a wire. The currents do not travel through the wire, but travel alongside it; it guides them to their destination. The wave currents stay close to the wire, thus insuring not only reliability, but also secrecy. Thus the high frequency current which General Squier uses passes through the ether as do radio waves, with the difference that instead of being diffused it travels in a path of which the wire is the center. The apparatus is the ground set of the standard ground aeroplane radio telephone equipment. It consists of two three-electrode vacuum tubes of

the transmitting type, a powerful oscillator and a modulator, a connecting circuit and a two-stage audio frequency amplifier.

General Squier obtains his results by the use of electro magnetic waves or oscillation of high frequency. In his investigations he found that there was a range of frequencies which had hitherto been ignored and this range he utilized. The oscillations in this range are so delicate they cannot be detected by the unassisted ear and they have to be strengthened to bring them within the perception of our sensory apparatus.

General Squier has produced frequencies which reached 600,000 a second. These currents do no harm to ordinary telephone apparatus. General Squier in effect has taken the vibrations of wireless and used them on the telephone. He says:

"Since a plurality of high frequency waves of different frequencies can be impressed upon the same line and since these may be selectively separated from each other by suitably tuned circuits, it is obvious that multiplex telephony may be accomplished. These high frequency waves may exist on the same line with ordinary battery telephone circuits without in any way affecting them, and thus this system of multiplex telephony may be applied to the usual telephonic circuits without the presence of harmful effects, such as cross talk or other disturbances."

Expressmen Strike at Chicago

An unauthorized strike at Chicago, affecting approximately 65 per cent of the 2,500 employees of the American Railway Express Company, was called on March 6. The strike was called to enforce the demands of the employees, other than the teamsters and chauffeurs, for an increase in wages of \$35 a month. After three days of idleness many of the striking employees made application to return to work, and it is thought that the strike will prove a fiasco.

As a result of the strike, an embargo was placed on all in and out business at depots and other affected points. Grover E. Simpson, general manager of the company, posted a notice on the bulletin boards of the various stations and depots informing the workers that the strike was unauthorized by the Brotherhood of Railway Clerks and its international officers. The Brotherhood has an agreement with the American Railway Express Company which, it is asserted by officers of the company, makes it illegal for the employees to strike without first having submitted their grievances to a board of arbitration.

J. A. Abbott, grand vice-president of the Brotherhood, who came to Chicago to reorganize the local union, made the statement that I. W. W. sympathizers among express handlers were responsible for the strike. "We have a unique situation in Chicago," Mr. Abbott said, "where a union leader, Chairman Shepherd, called an illegal strike, knowing that the nation-wide organization favors obeying the law. His action is not only a violation of every principle of union labor, but has resulted in throwing hundreds of men and women out of work and left them walking the streets penniless because they were afraid not to strike in face of this order. Allied with the move are a number of I. W. W.'s, that I know of, and their following is radical and of the Bolshevik type."

It is rumored that another cause of dissatisfaction among the strikers is that wagon dispatchers, general foremen and others, numbering over 400, were recently granted an increase in wages of \$35 a month. The express company officers assert that these men were granted the increase because subordinates to them were making more money because of overtime.

The situation at Chicago is serious at some points and unaffected at others. The embargo on in and out business will be enforced until the strike is settled.

A New Joint Committee on Concrete and Reinforced Concrete

A new Joint Committee on Standard Specifications for Concrete and Reinforced Concrete has just been organized to consist of five representatives each from the American Society of Civil Engineers, the American Society for Testing Materials, the American Railway Engineering Association, the Portland Cement Association and the American Concrete Institute.

The purpose of the committee is to make a thorough study of all available data on the subject of concrete, concrete materials and reinforced concrete and to incorporate the most modern information and experience into a general specification which may serve as a pattern for detailed specifications covering

specific types of concrete construction. The new "joint committee" may be considered as the successor of the "Joint Committee on Concrete and Reinforced Concrete," which was organized in 1904, through the co-operation of the same engineering and technical societies. The original joint committee presented its final report to the parent organizations in 1916.

The membership of the present "joint committee" is given below:

American Society of Civil Engineers:

R. P. Miller (chairman), consulting engineer, New York.
W. K. Hatt, Purdue University, La Fayette, Ind.
A. E. Lindau, Corrugated Bar Company, Buffalo, N. Y.
W. A. Slater, Bureau of Standards, Washington, D. C.
S. E. Thompson, consulting engineer, Boston, Mass.

American Railway Engineering Association:

J. J. Yates (chairman), bridge engineer, Central of New Jersey, New York.
G. E. Boyd, division engineer, Delaware, Lackawanna & Western, Buffalo, N. Y.
F. E. Schall, bridge engineer, Lehigh Valley, Bethlehem, Pa.
C. C. Westfall, engineer of bridges, Illinois Central, Chicago.
H. T. Welty, engineer of structures, New York Central, New York City.

American Concrete Institute:

S. C. Hollister (chairman), consulting engineer, Philadelphia, Pa.
R. W. Lesley, Philadelphia, Pa.
A. R. Lord, Lord Engineering Company, Chicago.
E. J. Moore, Turner Construction Company, New York.
L. C. Wason, Aberthaw Construction Company, Boston, Mass.

Portland Cement Association:

F. W. Kelley (chairman), Helderberg Cement Company, Albany, N. Y.
Ernest Ashton, Lehigh Portland Cement Company, Allentown, Pa.
J. H. Libberton, Universal Portland Cement Company, Chicago.
E. D. Boyer, Atlas Portland Cement Company, New York.
D. A. Abrams, Lewis Institute, Chicago.

American Society for Testing Materials:

R. L. Humphrey (chairman), consulting engineer, Philadelphia, Pa.
L. S. Moisseiff, consulting engineer, New York.
H. H. Quimby, department of city transit, Philadelphia, Pa.
A. T. Goldbeck, U. S. Bureau of Public Works, Washington, D. C.
E. E. Hughes, Franklin Steel Company, Franklin, Pa.

At the organization meeting of the committee held at the Engineers' Club, Philadelphia, on February 11, 1920, the following officers were elected: R. L. Humphrey, chairman; J. J. Yates, vice-chairman; D. A. Abrams, secretary-treasurer. Committees consisting of five to seven members each were organized to take up the following subjects: (1) Concrete materials. (2) metal reinforcing. (3) proportioning and mixing. (4) forms and placing. (5) design. (6) details of construction. (7) water-proofing and protective treatment. (8) surface finish. (9) form of specification. A number of the committees have organized and are actively engaged in the preparation of their preliminary reports. The next meeting of the committee will probably be held at Asbury Park, N. J., about June 22, during the annual convention of the American Society for Testing Materials.

Assistant Directors Named in New Transportation Bureau

The Division of Transportation recently established under the direction of the American Petroleum Institute, as announced in these columns on February 27, will have its headquarters in the National Life Insurance Building, Chicago, with M. J. Gormley director; L. M. Betts, formerly transportation assistant in the regional director's office of the Northwestern region, and prior to federal control superintendent of car service of the Belt Railway of Chicago; D. B. McIntyre, formerly transportation assistant in the regional director's office, Northwestern region, and later assistant traffic manager of the Simmons Company, Kenosha, Wis., and Colonel E. H. Shaughnessy, trainmaster of the Chicago & North Western and formerly general manager and acting director-general of the Advance Section, transportation department of the A. E. F., have been named as assistant directors.

The American Petroleum Institute, which occupies the same relative position in the oil industry as the American Railroad Association does in connection with the railroads, represents practically the entire ownership of petroleum service tank cars in the United States. According to the institute, it is anticipated that during the present year there will be a greater demand for petroleum and its products than

has ever been known before. It is hoped that the formation of this Division of Transportation, working along the following lines, will greatly assist in alleviating the traffic congestion which will arise from this increased demand.

L. M. Betts entered railway service with the Chicago & Western Indiana in 1900 as a stenographer in the operating department, shortly afterward becoming chief clerk to the superintendent, then serving as chief clerk to the general superintendent and general manager of the Chicago & Western Indiana and the Belt Railways of Chicago. In 1911 Mr. Betts was appointed superintendent of car service for the Belt Railway, holding this position until the railways passed to government control, at which time he was appointed supervisor of car service for the Western region, United States Railroad Administration, continuing in the same capacity with the Northwestern region when it was formed. Mr. Betts was later appointed transportation assistant in the regional director's office of the Northwestern region, leaving that position to take up his new work.

D. B. McIntyre entered railway service in 1898 as a telegraph operator on the Wisconsin division of the Chicago & North Western, serving subsequently as train despatcher in Chicago from 1902 to 1913, chief despatcher from 1913 to 1916 and as train master from 1916 to 1918, or until the railways passed to government control. Mr. McIntyre was then appointed one of the transportation assistants in the regional directors' office of the Northwestern region, remaining there until June, 1919, when he resigned to become assistant traffic manager of the Simmons Company, Kenosha, Wis., with which company he remained until called to his new work.

Colonel E. H. Shaughnessy has been trainmaster on the Chicago & North Western, at Sterling, Ill., since his return from service overseas. His sketch and photograph were published in the *Railway Age* of November 29, 1919.

The Second Railroad Conference of the American Association of Engineers to Be Held at Chicago

The program has been announced for the second railroad conference of the American Association of Engineers which will take place at the Congress Hotel, Chicago, on March 15. With a total membership of 4,000 in the 52 railroad sections of the association, a large attendance is anticipated. The program for the three sessions of the meeting is presented below:

9 A. M.

Chairman, W. W. K. Sparrow, assistant chief engineer, Chicago, Milwaukee & St. Paul. This session will be devoted to registration, reports of railroad sections, etc.

2 P. M.

Chairman J. R. Leighty, corporate engineer, Missouri Pacific. Plans for Future Railroad Work for the A. A. E., George W. Hand, assistant to the president, Chicago & North Western. Discussion led by J. B. Jenkins, valuation engineer, Baltimore & Ohio, and F. E. Morrow, chief engineer, Chicago & Western Indiana.

Railroad Sections, Their Organization and Functions (speaker to be announced later).

Railroad Sections, Their Relation to the Railroad Management, F. C. Huffman, principal assistant engineer, Chicago & North Western.

Railroad Sections, Their Relation to the Chapters, by Paul Augustinus. Discussion led by W. B. Crenshaw, principal assistant engineer, Southern Railway; F. P. Patenall, signal engineer, Baltimore & Ohio, and William J. H. Strong.

The A. A. E. Railroad Salary Schedule, by W. C. Bolin. Discussion led by R. W. Barnes, C. F. Bower, A. M. Knowles, assistant engineer, B. & O., and O. R. West, assistant division engineer, Atchison, Topeka & Santa Fe Coast Lines.

8 P. M.

Chairman, W. H. Hoyt, chief engineer, Duluth, Missabe & Northern. The Classification and Compensation of Engineers, to be discussed by members of Engineering Council's committee on this subject, Arthur S. Tuttle, Bion J. Arnold and Oscar C. Merrill.

Problems of the Railroads Since Their Return to Private Control, by S. M. Felton, president, Chicago Great Western.

The American Association of Engineers—Its Aims and Ideals, by F. H. Newell, president of the association.

Traffic News

The Mexico Northwestern has increased all passenger and freight rates 20 per cent. effective March 4.

G. A. Rautenberg, assistant traffic manager of Anderson & Gustafson, Inc., Chicago, has been appointed traffic agent for Guggenheim Brothers, meat packers, Chicago.

The Philadelphia & Reading announces the restoration of the former custom of accepting local tickets in either direction, and also the abolition of the rule restricting season tickets to an even calendar month.

Jesse J. Robinette, chief clerk in the special service department of the Traffic Service Corporation, with headquarters at Washington, D. C., has resigned to become traffic manager for the Jonesboro (Ark.) Chamber of Commerce.

William J. Young, assistant to the regional director of the Northwestern region, with headquarters at Chicago, has been appointed office manager in charge of the distributing department of the Goodyear Tire & Rubber Company, Akron, Ohio, with office at Chicago.

Work at the docks of the Southern Pacific Company at Galveston, Tex., was resumed on February 20, after an unsuccessful strike which had lasted 14 days. The 900 workmen were all taken back and they began at once unloading five steamships which had been tied up two weeks. The men receive 60 cents an hour; they struck for 90.

After a conference with representatives of the governors of the Mexican states of Sonora and Sinaloa, Epes Randolph, president of the Southern Pacific of Mexico, recently announced that through Pullman service will be inaugurated from Los Angeles, Cal., and Arizona points to Mazatlan, Mex., in the near future.

The Cape Cod Canal, which was surrendered by the government on the night of February 29, was closed to traffic for three days because of uncertainty in the minds of the owners as to whether or not they could resume operation pending the settlement of the question as to the amount which the government is to pay for the canal. Traffic was resumed on March 4.

The consolidated ticket office at Denver, Col., has been given up by the roads which used it during the period of government control. The Union Pacific, the Missouri Pacific and the Southern Pacific have moved their offices to the Denham building. The Atchison, Topeka & Santa Fe, the Chicago, Burlington & Quincy, and the Chicago, Rock Island & Pacific will continue their offices in the Union station.

The embargo placed by B. Bush, regional director of the southwestern region, on October 23, 1918, against all c. 1. and l. c. 1, freight at Burkburnett, Tex., and Wichita Falls on the Missouri, Kansas & Texas of Texas and the Wichita Falls & Northwestern, was cancelled by the Katy on March 1. The slowing up of oil production and the clearance of accumulation are the reasons given for lifting the embargo.

Suits for losses on damaged cotton, aggregating more than \$1,000,000 were filed in the Superior Court of Glynn county, by cotton brokers at Brunswick, Ga., in February, against Walker D. Hines, director general of railroads. The plaintiffs are said to be among the largest cotton brokers in the country and they say that thousands of bales of cotton have been damaged while in the storehouses of the Atlanta, Birmingham & Atlantic and the Southern Railway. Most or all of the cotton was in freight houses in Brunswick, awaiting shipment to Europe.

The New York State Barge Canal (which, to be of use in the transportation of grain and other commodities, needs better terminal facilities than are now available), was the subject of a report and discussion before the Chamber of Commerce of

the state of New York, in New York City, on March 4, and resolutions were adopted favoring the submission to the voters of the state of a proposal to issue bonds for the sums necessary to build the necessary grain elevators and other terminal structures. It is estimated that the needed facilities will cost \$25,000,000.

Brig. Gen. Hines Superintendent of Inland & Water Transportation

The Secretary of War has delegated to Brig. Gen. Frank T. Hines, chief of the transportation service, control of the inland waterways transportation system which were transferred to the jurisdiction of the War Department under the Transportation Act. Gen. Hines says that the same service will be maintained for the present and that he will utilize the existing organization and personnel in administering the work. A delegation of Senators and Representatives from the Mississippi valley and other sections interested in waterway traffic called on Secretary Baker to request that present facilities be maintained and extended and that railway corporations be prevented from strangling water competition.

I. C. C. Recommends Continued Use of Uniform Coal Car Distribution Rules

The Interstate Commerce Commission on March 2 issued the following notice to carriers and shippers, recommending the continued use of the Railroad Administration's uniform mine rating and car distribution rules:

"The supply of cars available for the transportation of coal is insufficient to meet the demand. Unusual movements incident upon the strike of coal miners have brought about an abnormal location of cars. It is desirable that the proper relocation of cars shall be brought about as rapidly and with as little confusion as is possible. Critical situations still exist in which fuel for essential industries and purposes must be provided. The railroads and the coal operators have all been working under the uniform mine-rating and car-distribution rules established by the Railroad Administration and those rules seem to be generally satisfactory and to meet with general approval.

"To the end that conflicting and contradictory rules on different roads and in different fields may be avoided, the commission recommends that until experiences and careful study demonstrate that other rules will be more effective and beneficial and especially during the remainder of the early spring the uniform rules as contained in the Railroad Administration's Car Service Section Circular CS-31 (Revised) be continued in effect."

These rules were published in the *Railway Age* of January 16, page 258.

New Canadian Live Stock Contracts

The Board of Railway Commissioners of Canada is engaged in the drafting of a new contract affecting the transportation of livestock by rail in the Dominion. A hearing was held before the board at Ottawa, Ont., on February 10, at which representatives of the Canadian Pacific, the Canadian National, the Grand Trunk and the Michigan Central and representatives of the shippers and various public bodies were represented. The disputed provisions of the proposed contract concerned to limitation of liability for loss or damage to livestock and the release of responsibility for accident to attendants.

The shippers contended that all care of the animals while in transit should devolve upon the railway. They base their suggestions upon the lack of accommodations for attendants and because the average price obtainable for livestock makes it imperative that the railway companies assume responsibility for safe delivery.

The railway companies pointed out the essential difference between the conditions relating to the transportation of livestock and those appertaining to dead freight and urged that, owing to the inherent nature of the livestock traffic and its susceptibility to damage, it is essential that the carriers should be permitted to limit their responsibility in respect to it. The low basis of rates applicable to livestock, as compared with certain classes of dead freight not susceptible to injury, was also brought forward as an argument against the proposed complete liability of the railroad.

Commission and Court News

Interstate Commerce Commission

The Commission has issued revised rules of practice in proceedings before the commission under the act to regulate commerce, as amended, which were adopted on March 2.

The Commission has issued an order authorizing carriers to make tariff changes, upon not less than one day's notice, in conformity with the provisions of Section 418 (5) of the transportation act, which requires that charges for carload lots of livestock destined to or received at public stock yards shall include all necessary service of unloading, reloading, delivery, etc.

The Commission has issued an order authorizing carriers until September 1, 1920, unless otherwise ordered, to make changes designated in its order in tariff publications which contain lists of stations, landings or express offices and information regarding station conditions and facilities and lists of restricted and prohibited articles in so far as said changes result in reduced rates, fares or charges. The new transportation act prohibits tariff changes resulting in reductions in rates during the six months' guaranty period, unless approved by the commission.

Court News

"First Instance Tariff"—Effect of Changes

The Minnesota Supreme Court holds that a tariff providing for the absorption by the carrier of the switching charges of connecting carriers at destination, where, under the tariff theretofore published the shipper was required to pay such charges, is a change in an existing tariff, and not a "first-instance tariff," within the meaning of the Minnesota statute of 1905. A change of tariff voluntarily made, reducing rates to all shippers on all commodities, at all stations in the state, becomes effective without obtaining the consent of the state Railroad Commission, as provided by the act. After such a change has been made, the original rate cannot be restored without the consent of the Commission.—*National Elevator Co. vs. Chicago, M. & St. P. (Minn.)*, 173 N. W. 418.

Easement for Years for Right of Way

—Rights on Expiration

A railroad may accept a conveyance of land upon any condition that may lawfully be annexed to an ordinary grant; and such a contract may create an estate less than a fee in land taken for a right of way. A contract between a railroad and a landowner provided for an easement for years for a right of way to the railroad. The California Court of Appeal, First District, holds that if at the expiration of the estate granted, the land was necessary for the railroad for railroad purposes, and the corporation or its successor elected to continue its use for a right of way, it could do so by compensating the reversioner. Otherwise it must abandon this portion of its right of way and surrender possession to the owner of the estate in reversion.—*Conlin vs. Southern Pacific (Cal.)*, 182 Pac. 67.

United States Supreme Court

Employee and Employer Railroad Cannot

Be Sued in One Count

An injured employee brought an action in a state court of Georgia jointly against a railroad and its engineman, and sought in a single count, which alleged concurring negligence, to recover damages from the company under the Federal Employers' Liability Act and from the individual defendant under the common law. Each defendant filed a special demurrer on the

ground of misjoinder of causes of action and misjoinder of parties defendant. The trial court overruled the demurrers, but the State Supreme Court, on a certified question, held that such joinder was not permissible, and this judgment (147 Ga. 428) has been affirmed by the Supreme Court of the United States. To deny to a plaintiff the right to join in one count a cause against another employee with one against the employer in no way abridged any substantive right of the plaintiff against the employer. The argument that the plaintiff had been discriminated against because he was an interstate employee was held answered, if answer was necessary, by the fact that the Supreme Court of Georgia had applied the same rule in *Western & Atlantic v. Smith*, 144 Ga., 737 (22 Ga. App. 437); *Lee v. Central of Georgia*. Decided March 1, 1920.

Mail Carrying Contracts—Deductions for Delay

The Kansas City Southern sued the government in the Court of Claims, alleging that in June, 1906, it entered into contracts with the Post Office Department to transport the mails over three designated routes "upon the conditions prescribed by law and the regulations of the Department applicable to railroad mail service;" that during the fiscal year 1907 (the petition was not filed until December 19, 1912) the Department withheld from its stipulated pay \$3,355.48, "as a penalty imposed on account of late arrivals of trains, and failure to perform service on the mail routes," and that such deductions were "unlawfully withheld." The prayer was for the full amount of the deductions. The petition was dismissed by the Court of Claims.

On appeal to the Supreme Court of the United States, the railroad argued that when the contracts were made, long departmental construction had limited the failure to perform service, described in Revised Statutes, Sec. 3962, giving the power to make the disputed deductions, to 24 hours of delay in the arrival of trains, and that failure, from 1872, when the section was enacted, to 1907, to impose fines or deductions for shorter delays, amounted to a construction by the Department that authority to impose fines upon contractors for delinquencies did not warrant deductions for failure to maintain train schedules when the delay was less than 24 hours.

Rejecting the contention, and affirming the judgment of the Court of Claims, the Supreme Court said, per Mr. Justice Clarke:

"Failure, within moderate limits, to maintain train schedules may well have been regarded by the Postmaster General as a necessary evil to be tolerated and not to call for the exercise of his power to impose fines under the statute, when more flagrant neglect to maintain such schedules might very justly require him to exercise such authority in order to prevent intolerable public inconvenience. We cannot doubt that the contracts of the appellant, and the law which was a part of them, furnished ample authority for the action of the Department in this case and that omission to exercise such power did not make against the proper use of it when, in the judgment of the Postmaster General, adequate occasion for its use should arise."—*K. C. S. v. U. S.* Decided March 1, 1920.

Stock Dividends Not Income

Stock dividends declared by a corporation representing its own surplus are not taxable as income, the United States Supreme Court held in a decision rendered on March 8, declaring unconstitutional the provisions of the income tax law of 1916 applying the tax to stock dividends declared on earnings and profits accruing after March 1, 1913. The case, which involved a stock dividend of the Standard Oil Company of California, was decided five to four, Justices Holmes and Day joining in one dissenting opinion, and Justices Clark and Brandeis in another. In the majority opinion, sustaining the decree of the lower court, Justice Pitney said:

"The stock dividend is no more than a book adjustment, in essence not a dividend, but rather the opposite. No part of the assets of the company is separated from the common fund . . . nothing distributed except paper certificates that evidence an antecedent increase in the value of the stockholders' capital interest resulting from an accumulation of profits by the company, but profits so far absorbed in the business as to render it impracticable to separate them for withdrawal and distribution.

"Far from being a realization of profits of the stockholder, it tends rather to postpone such realization, in that the fund represented by the new stock has been transferred from surplus to capital, and no longer is available for actual distribution.

"The essential and controlling fact is that the stockholder has received nothing out of the company's assets for his separate use and benefit; on the contrary, every dollar of his original investment, together with whatever accretions and accumulations have resulted from employment of his money and that of the other stockholders in the business of the company, still remains the property of the company, and subject to business risks which may result in wiping out the entire investment.

"Having regard to the very truth of the matter, to substance and not to form, he has received nothing that answers the definition of income in the meaning of the sixteenth amendment.

"We are clear that not only does a stock dividend really take nothing from the property of the corporation and add nothing to that of the shareholder, but that the antecedent accumulation of profits evidenced thereby, while indicating that the shareholder is the richer because of an increase of his capital, at the same time shows he has not realized or received any income in the transaction."

Deductions from Mail Contract Pay to

Land-Aided Companies

For forty-one years after the completion of the 60-mile railroad from Port Huron to Flint, Mich., the mails were carried over it by the successive owners under the usual postal contracts. In 1912 the Postmaster General, concluding that this was a land-aided railroad within the provisions of section 13 of the act of 1876, and entitled only to 80 per cent of the ordinary compensation restated the account for the twelve full years during which the road had been operated by the Grand Trunk Western, since it acquired the road in 1900. Twenty per cent of the mail pay for that period was found to be \$50,359.70, and this amount he deducted from sums accruing to the company under the current mail contract, and also reduced the amount under the current contract by 20 per cent. The road had in fact been built without any aid through grant of public lands. None had passed to the Grand Trunk Western when it acquired the road, and, so far as appeared, that company had no actual knowledge that any of its predecessors in title had acquired any public land because of its construction. It brought suit in the Court of Claims to recover the amount deducted. Its petition was dismissed and it appealed.

By an act of June 3, 1856, Congress granted to the State of Michigan certain public lands to aid in the construction of certain lines of railroad, a part extending easterly of Flint to Port Huron—another part westerly of Flint to Grand Haven. The act contained the usual mail provision. It contemplated a grant of six sections (3,840 acres) per mile of road. That would have been 230,400 acres for the sixty miles. The company which built the road and those claiming under it received at most 6,428 acres, the title to a great part of the land granted having proved to be invalid. The case was one of apparent hardship. The Supreme Court of the United States has affirmed the judgment of the Court of Claims for the following reasons: If the railroad was land-aided, payment of more than 80 per cent of the full rates otherwise provided by law was unauthorized, and it was the Postmaster General's duty to seek to recover the overpayment. If it was land-aided, it was immaterial that the company which later carried the mail over it received none of the land and obtained no benefit from the grant. The obligation to carry mails at 80 per cent of rates otherwise payable attached to the road like an easement or charge, and it affected every carrier who might thereafter use the railroad whatever the nature of the tenure. *Chicago, St. Pa. & M. v. U. S.* 217 U. S. 180. The railroad expressly disclaimed any contention that the mail clause should not apply because the quantity of land covered by the grant was small as compared with that contemplated by the Act of June 3, 1856, and with the cost of the road. The contention that the railroad was no land-aided because it had, in fact, been completed without the aid either of funds or of credit derived from these public lands was not sustained. The successor railroad was in no better position than the acceptor of the grant to question the charge imposed by such acceptance.—*Grand Trunk Western v. U. S.* Decided March 1, 1920.

Equipment and Supplies

Locomotives

THE VIRGINIAN RAILWAY is inquiring for 10 Pacific type locomotives.

THE GRAND TRUNK has ordered 25 switching locomotives from the Lima Locomotive Works.

THE CAMBRIA & INDIANA has ordered 2 Consolidation locomotives from the Baldwin Locomotive Works.

THE SUMPTER VALLEY has ordered 2 Mikado type locomotives from the American Locomotive Company. These locomotives will have 19 by 20 in. cylinders and a total weight in working order of 128,000 lb.

THE GREAT NORTHERN order for 50 locomotives reported in the *Railway Age* of February 27 included 45 Mikado type locomotives placed with the Baldwin Locomotive Works, 14 to use oil for fuel and 31 to use coal.

THE OREGON LUMBER COMPANY, Portland, Ore., has ordered 3 Mikado type locomotives from the American Locomotive Company. These locomotives will have 20 by 28 in. cylinders and a total weight in working order of 174,000 lb.

THE CANADIAN NATIONAL RAILWAYS, reported in the *Railway Age* of February 27 as having ordered 55 locomotives, from the American Locomotive Company, have ordered 12 additional Pacific type locomotives from the same company.

THE AKRON, CANTON & YOUNGSTOWN has ordered 2 eight-wheel switching locomotives from the American Locomotive Company. These locomotives will have 25 by 28 in. cylinders and a total weight in working order of 214,000 lb.

THE RIVERSIDE PORTLAND CEMENT COMPANY, Riverside, Cal., has ordered one six-wheel switching locomotive from the American Locomotive Company. This locomotive will have 18 by 24 in. cylinders and a total weight in working order of 128,000 lb.

THE PENNSYLVANIA EQUIPMENT COMPANY, 1420 Chestnut street, Philadelphia, Pa., is in the market for a second-hand, 36 in. gage Mogul type locomotive, with 9 by 14 in. or 10 by 14 in. cylinders, weighing about 18 to 20 tons, for Pacific coast delivery.

Freight Cars

THE CHARLOTTE HARBOR & NORTHERN has ordered 100, 50-ton phosphate cars from the Pressed Steel Car Company.

THE UNITED FRUIT COMPANY has ordered 50 steel underframe flat cars of 50,000 lb. capacity from the Magor Car Company. These cars are for use on its railroads in Honduras.

NEW YORK CENTRAL.—The time for opening bids has been extended from March 10 to March 15 for the 5,800 steel box cars, 4,600 hopper cars of 55 tons capacity and 1,100 gondolas of 50 tons capacity, reported in the *Railway Age* of February 27.

CANADIAN PACIFIC.—A press despatch from Montreal, Que., dated March 8, reports that this road has given out equipment orders totalling about \$15,000,000, including 2,500 60-ton box cars, 500 refrigerators, 500 automobile cars, 67 ore cars. A part of this order will be built at the works of the company, and the Canadian Car & Foundry Company will build a part of the cars.

Passenger Cars

CANADIAN PACIFIC.—The equipment orders reported in a despatch from Montreal, noted above under freight cars, include: 12 dining cars, 53 sleepers, 13 compartment cars and 24 baggage cars.

Iron and Steel

THE UNITED FRUIT COMPANY has ordered 1,400 tons of 60-lb. rails for export to Cuba.

Supply Trade News

A. G. Williams, manager export department of the American Steel Foundries, Chicago, Ill., sailed from Seattle, Wash., on March 1 for China and Japan, to develop new business in those countries.

The Tacony Steel Company, Philadelphia, Pa., has opened a new office in the Marquette building, Chicago, in charge of Frank B. Hillwick, district sales manager. Mr. Hillwick was formerly in the sales department of the Crucible Steel Company of America, Pittsburgh, Pa., and prior to that with the Bethlehem Steel Company, Bethlehem, Pa.

The Algoma Steel Corporation, Sault Ste. Marie, Ont., is purchasing equipment for its new combined rail and structural mill, which it is erecting at Sault Ste. Marie. The principal buildings will be of structural steel construction with corrugated iron covering.

Duncan W. Fraser, who has been elected a vice-president of the American Locomotive Company, as was announced in the *Railway Age* of March 5, was born in Pictou county, Nova Scotia, Canada, in 1875,



D. W. Fraser

of Scotch ancestors. He was educated in Nova Scotia public schools and at the age of 18 went to Providence, R. I., where he served a four-year apprenticeship course in the shops of the Rhode Island Locomotive Works, later the Providence plant of the American Locomotive Company. With the exception of three years in the service of the Brown & Sharpe Manufacturing Company, Providence, R. I., he continued in the service of the locomotive works until 1904.

In that year the Montreal Locomotive & Machine Company, of Montreal, was bought by the American Locomotive Company and Mr. Fraser was transferred to that plant, serving consecutively as gang boss, sub-foreman and assistant foreman, until 1906, when he was appointed general foreman of the machine departments. In 1908, he was appointed assistant superintendent and later served as superintendent, until December, 1910, when he was made works manager. On February 15, 1917, he was appointed general manager of the Montreal Locomotive Works, Limited, in charge of sales and manufacturing, and in November, 1919, he was appointed managing director of that company. On March 1, 1920, he was appointed vice-president in charge of sales of the American Locomotive Company and vice-president in charge of domestic sales of the Montreal Locomotive Works, Limited, with headquarters at New York, to succeed James D. Sawyer, resigned.

At a recent meeting of the stockholders of the Buffalo Forge Company, Buffalo, N. Y., new officers were elected as follows: Henry W. Wendt, president; Edgar F. Wendt, vice-president and treasurer; Henry W. Wendt, Jr., vice-president and secretary; C. A. Booth, vice-president and sales manager. The new directors include the above named officers and in addition H. S. Whiting.

The American Steam Conveyor Corporation, Chicago, announces that arrangements have been made with the Wellman Bibby Company, Ltd., 36 Kingsway, London, W. C. 2,

England, to act as its representative in Great Britain and Ireland for the sale of the American steam ash conveyor. The Wellman Bibby Company intends to manufacture the American steam ash conveyor in England. This company is well known in the British Isles and handles the sale of a number of American engineering products there.

James Denison Sawyer, who resigned as vice-president of the **American Locomotive Company**, as was announced in the *Railway Age* of March 5, was born in 1875, at Buffalo, N. Y., and graduated from Yale University in 1896. He entered the service of the Brooks Locomotive Works, Dunkirk, N. Y., in May, 1898, and served in various departments of the works until the formation of the American Locomotive Company in June, 1901. He then became assistant to the second vice-president, who was at that time R. J. Gross, in charge of the sales department. In July, 1904, he was transferred to the New York office in the same capacity, and in 1907 became manager of sales, which position he held until February 1, 1917, when he became vice-president of the company in charge of the sales department. Mr. Sawyer resigned on March 1 to become vice-president of the banking firm of Morton & Co., Inc., New York.

A. T. Shurick, a mining engineer on the business staff of the *Coal Trade Journal*, has been elected a vice-president of **F. C. Thornley & Co., Inc.**, with offices at 31 West Forty-third street, New York. This company designs, constructs and organizes for operation installations for the mechanical handling of any material on a large or small scale. It also acts in a consulting capacity in the valuation and appraisal of properties, preparation of engineering reports, etc. Mr. Shurick has had a long and varied experience in the development and operation of mining properties. In addition to his other duties he will be in direct charge of the mining operations of the company. He received his engineering training at the Virginia Polytechnic Institute and was engaged in active practice for ten years with the Rock Island Coal Company, the Mexican Coal & Coke Company, and as engineer of coal properties for the Anaconda Copper Mining Company. He joined the editorial staff of the *Coal Age* when that journal was started in 1911, and at the beginning of the World War, he entered the army and served as a captain with the 209th Engineers. For the past year he has been, first, technical editor, and later business manager of the *Coal Trade Journal*. The official personnel of F. C. Thornley & Co. has been identified with the construction of some of the largest material handling installations in the country, including the Curtis Bay coal loading pier and pier No. 5, at Locust Point for the Baltimore & Ohio, at Baltimore, Md., the locomotive coaling station with storage for the Erie at Bailey avenue roundhouse, East Buffalo, N. Y., the New Jersey avenue fuel yard of the Bureau of Mines at Washington, D. C. Mr. Thornley, personally, has been retained as consulting engineer, dealing with large handling projects at various times by the Baltimore & Ohio, the New York, New Haven & Hartford, the Inland Steel Company, the Solvay Process Company and others.



A. T. Shurick

Erie's Hornell Shops Leased to Private Firm

The Hornell Repair & Construction Company, a concern newly organized for that purpose, on March 6 assume control of the Erie Railroad shops, roundhouse and car repair yards at Hornell, N. Y. By a contract made on March 1 the new company has leased the shops and will henceforth manage and operate them

as a private plant. The officers and employees have been continued in the same positions, the prevailing wage scales, the working conditions and transportation privileges maintained.

The new concern is headed by Hornell business men and its officers consist of Martin F. Woodbury, president; Justin B. Bradley, vice-president; Robert W. Bull, secretary; John F. Nugent, treasurer. Burr L. Smith is a director and Francis M. Cameron attorney.

In the announcements of the step statements are made that it is hoped that the more direct control of operations will prove more efficient and economical than the former method to control. It is understood that the shops will be improved and enlarged.

Railway Steel-Spring Company

The annual report of the Railway Steel-Spring Company for the year ended December 31, 1919, shows net earnings of \$4,394,354 after deducting expenses for manufacturing, depreciation, etc. Dividends of 7 per cent on the preferred stock totaled \$945,000 and of 8 per cent on the common stock, \$1,080,000. There was also \$1,200,000 reserved for taxes, leaving a surplus for the year of \$1,169,354.

President F. F. Fitzpatrick, speaking in his report concerning the work for the year, says in part: "Taking into consideration the period of adjustment from a war to a peace time basis, the results from operations during the year were satisfactory. During the early part of the year 1919 the production of the company was large, due mainly to orders for material for export received during the latter part of the previous year. There was a falling off in new business during this period, which was reflected in a reduced production for the last half of the year. Before the end of the year 1919 there was a marked improvement in domestic and some improvement in foreign business, which still continues. Furthermore, there is every indication that large orders for locomotives, passenger cars and freight cars will be placed during the present year, in which business your company will participate. With the substantial orders now on our books and the favorable outlook, it would appear that the results from operations for 1920 will be very good."

American Steel Foundries

The American Steel Foundries' annual report for the year ended December 31, 1919, shows earnings from operations of \$6,107,825. This included earnings of the Griffin Wheel Company for the six months since its acquisition and also amounts received in settlement of war contracts and was after deducting expenses of manufacturing, selling and administration. From the earnings \$333,296 was deducted for depreciation, leaving a net profit from operations of \$5,774,529, which was brought up to \$6,115,007 by miscellaneous income of \$340,478. The net profits for the year after the deduction of interest and reserve for taxes, etc., was \$4,210,634. After providing for the preferred dividends of \$296,846 the earnings for the year were equivalent to about \$7.50 a share on the common stock (\$33.33 par value). Common stock dividends totaled \$1,503,600 and the company retired during the year \$344,000 par value 4 per cent debentures. President R. P. Lamont in his report speaks of the broadening out of the company's activities in the purchase of the Griffin Wheel Company and through the establishment of the American Autoparts Company at Detroit to manufacture automobile springs. In speaking of the outlook for the coming year, he says:

"It is difficult to forecast the results for the present year. If we judge our prospects by the known necessities of the railroads we should have a good year. . . . If the railroads go back to their owners under any sort of a fair plan there will undoubtedly be heavy buying of equipment as soon as the necessary details can be worked out. . . ."

"Any considerable amount of railroad business added to the present volume of general business will still further add to the scarcity of labor, increase our costs and make operating conditions generally just that much more difficult. The effect of these unfavorable operating conditions may be reflected in the earnings, but your plants and organization are in position to handle their share of whatever business offers and we are hopeful of a good year."

A stockholders' meeting of the company will be held in Jersey City, N. J., on March 18, to consider authorizing an increase in the common stock from 515,520 to 750,000 shares.

Railway Financial News

GUARANTEE OF FEDERAL COMPENSATION.—The directors of the following roads have accepted the six months' guarantee of federal compensation:

Atchison, Topeka & Santa Fe.
Chicago, Kalamazoo & Saginaw.
Chicago, Rock Island & Pacific.
Fulton Chain.
Kankakee & Seneca.
Lake Erie & Pittsburgh.
Muncie Belt.
Minneapolis & St. Louis.
Missouri Pacific.
New York Central.
Pittsburgh & West Virginia.
Raquette Lake.
Rutland.
Southern Pacific.
St. Louis-San Francisco.
Troy Union.

ATLANTA, BIRMINGHAM & ATLANTIC.—The Railroad Commission of Georgia has authorized the issuance of \$1,014,000 serial equipment notes.

HAKINSVILLE & WESTERN.—This road will be offered for sale for the second time on April 6.

THE CHICAGO & ALTON.—This company has applied to the Public Utilities Commission of Illinois for an order authorizing the issue of \$1,988,000 of equipment notes.

HAWKINSVILLE & FLORIDA SOUTHERN.—See Southern.

INTERNATIONAL & GREAT NORTHERN.—An additional allowance of \$202,000 per year has been granted to the International & Great Northern by the director general of railroads, for the use of its lines during the period of government control. The action was taken as the result of a protest made by James A. Baker, receiver for the road, who maintained that the railroad company was entitled to more than \$1,394,945, the original award. Authority to make the contract with the director general covering the additional compensation was granted by the district court at Houston, Tex.

LAWRENCE BRANCH.—See Southern.

NEW YORK, NEW HAVEN & HARTFORD.—This company has asked the Public Utilities Commission of Connecticut to approve an issue of short-term notes to the amount of \$4,813,930.

PENNSYLVANIA.—The Pennsylvania Railroad and the Pennsylvania Company have made an offer to the holders of the 20 per cent minority stock of the Pittsburgh, Cincinnati, Chicago & St. Louis, which is outstanding and not owned by the Pennsylvania Company, to exchange their shares for Pittsburgh, Cincinnati, Chicago & St. Louis 5 per cent bonds, to be guaranteed either by the Pennsylvania Railroad or the Pennsylvania Company. Details of the offer will be made later.

PERE MARQUETTE.—The directors have decided not to accept Section 209 of the Esch-Cummins law which provides for the continuation of the government guarantee for six months. This is the first so-called creditor road, which earned more than the standard return during federal control, to refuse the government's offer.

PITTSBURGH, CINCINNATI, CHICAGO & ST. LOUIS.—See Pennsylvania.

ROSWELL RAILROAD.—See Southern.

SOUTHERN.—Three short branch lines, operated by this system, may have to suspend owing to failure to pay expenses, according to Henry W. Miller, vice-president of the Southern. These are the Roswell Railroad, 13 miles; the Lawrenceville Branch Railroad, 10 miles, and the Hawkinsville & Florida Southern, 95 miles long. Mr. Miller said that these roads had been run at serious loss by the Railroad Administration and he did not believe that they could continue operations after September 1, 1920, up to which date the government has agreed to guarantee expenses.

Railway Officers

Executive

H. R. Safford, notice of whose appointment as assistant to the president of the Chicago, Burlington & Quincy, with headquarters at Chicago, was announced in the *Railway Age*



H. R. Safford

of February 27, page 660, was born at Madison, Ind. After graduating from Purdue University, he began railway service in 1895 as a rodman on the Illinois Central. From 1897 to 1900, he was resident engineer, in charge of construction work on the same road, and in the latter year was appointed roadmaster. From May, 1903, to March, 1905, he was principal assistant engineer and on the latter date was promoted to assistant chief engineer. In July, 1906, he was promoted to chief engineer maintenance of

way, which position he retained until May, 1910, when he left that road to become assistant to the president of the Edgar Allen Manganese Steel Company. The following year he was appointed chief engineer of the Grand Trunk, which position he retained until 1918, when he was appointed engineering assistant to the regional director of the Central Western region. This position he held until his recent appointment.

Financial, Legal and Accounting

George S. Ross, notice of whose appointment as secretary and treasurer of the Toledo, St. Louis & Western, with headquarters at Toledo, Ohio, appeared in the *Railway Age*



G. S. Ross

of February 27 (page 656) was born at Streator, Ill., on December 21, 1894. He entered railway service in 1914 as a clerk in the treasury department of the Toledo, St. Louis & Western. A year later he was appointed private secretary to Brand Whitlock, United States Ambassador to Belgium, and was in Belgium during the stay of the minister there. In 1917, after having returned from abroad, Mr. Ross was appointed assistant secretary and assistant treasurer of the Toledo, St. Louis & Western. In 1918 he was promoted to

federal treasurer and in May, 1919, his jurisdiction was extended to include the Detroit & Toledo Shore Line. This position he held until his present appointment.

R. W. Barrett, general solicitor for the Lehigh Valley under the Railroad Administration, with headquarters in New York, will continue in the same position under private ownership. **E. H. Burgess** has been appointed assistant general solicitor.

Paul C. Hamlin, general solicitor of the Lehigh & New England under the Railroad Administration, will continue in that position under private control.

R. B. Scofield, assistant secretary and assistant treasurer for the Delaware, Lackawanna & Western, has retired, after a service of forty-eight years, effective March 1. This will correct an item in the *Railway Age* of March 5 (page 734), which stated that **J. G. Enderlin** had retired from this position, whereas Mr. Enderlin is Mr. Scofield's successor.

H. W. Johnson, prior to and during federal control, auditor of expenditures of the Chicago, Burlington & Quincy, with headquarters at Chicago, has been appointed assistant to the comptroller, with the same headquarters. **F. L. Porter**, prior to and during government control, assistant auditor of expenditures, has been promoted to auditor of expenditures, succeeding Mr. Johnson.

Operating

F. G. Minnick, during federal control assistant federal manager of the Pittsburgh & Lake Erie, has been appointed assistant general manager, with headquarters at Pittsburgh, Pa., effective March 1.

W. H. Edmondson, during federal control assistant to the federal manager of the Grand Trunk Western Lines, with office at Detroit, Mich., has been appointed assistant to the general manager, with the same headquarters.

Robert V. Massey, general superintendent of the Pennsylvania, Eastern Lines, during the period of federal control, who has recently been appointed assistant general manager



R. V. Massey

of the Eastern region of the same road, with headquarters at Philadelphia, was born in Dover, Kent county, Del., on September 29, 1871. He prepared for college at the Hill School, at Pottstown, Pa., and graduated from Sheffield Scientific School, Yale University, in 1892. He began railroad work in the construction department of the Pennsylvania on September 1, 1892, and remained in that department until August, 1895, when he was transferred to the maintenance of way department, in the office

of the principal assistant engineer at Altoona, Pa. In November of the same year he was appointed assistant supervisor at Freeport, Pa., and on April 1, 1897, was transferred to Baltimore, Md., as assistant supervisor of the Baltimore division of the Northern Central. He was transferred to Mifflin, Pa., as assistant supervisor of the Middle division of the Pennsylvania on April 1, 1899, and in 1890 was promoted to supervisor of the Schuylkill division. While holding the position of supervisor he left the service of the Pennsylvania to become affiliated with the Philadelphia, Baltimore & Washington, now part of the Baltimore & Ohio, in the same capacity; but returned in 1905 to act as supervisor at the Pittsburgh yard. On April 1, 1907, he was promoted to division engineer of the Schuylkill division and transferred to the New York division on January 1, 1909. In 1909 he was appointed superintendent of the New York, Philadelphia & Norfolk and the Cape Charles, with headquarters at Cape Charles, Va. On February 11, 1914, he returned to the Pennsylvania as superintendent of the Manhattan division with headquarters in New York, and on May 1, 1916, when the Manhattan and New York divisions were consolidated, his title was changed to superintendent of the New York di-

vision. He was appointed general superintendent of the Eastern Pennsylvania division, with headquarters at Altoona, Pa., in June, 1917. On July 1, 1918, he was transferred to the New Jersey grand division in the same capacity.

W. R. Davidson, general superintendent of the Grand Trunk, East Lines, with headquarters at Montreal, Que., has been transferred to the Western Lines, with headquarters at Chicago, succeeding **J. J. Corcoran**, who has resigned.

H. R. Arthur, formerly trainmaster of the Canadian National at Saskatoon, has been appointed trainmaster of the First division, Pacific district, with headquarters at Lucerne, B. C., succeeding **H. W. Culver**, resigned, effective February 18.

O. M. Barlow, roadmaster of the Hazen district of the Salt Lake division, of the Southern Pacific, Pacific System, has also been appointed trainmaster, with jurisdiction from Westwood, Cal., to Fernley, Nev., and from Hazen, Nev., to Fallon, with headquarters at Susanville, Cal.

J. H. Tonge, heretofore general superintendent of the Baltimore & Ohio and the Western Maryland, with office at Hagerstown, Md., has been appointed superintendent of the Washington Terminal Company, Washington, D. C., succeeding **J. L. Wilkes**.

R. H. Fish, superintendent of the Stratford division of the Grand Trunk, with headquarters at Stratford, Ont., has been appointed general superintendent of the Eastern Lines, with headquarters at Montreal, Que., succeeding **W. R. Davidson**, transferred to the Western Lines, effective March 1. **W. J. Piggott**, trainmaster at Allandale, Ont., succeeds Mr. Fish, effective March 4.

John B. Warrington, during the period of federal control terminal manager of the Washington, D. C., Terminals, with headquarters at Washington, has been appointed manager of through freight and passenger service of the New York and Washington lines of the Baltimore & Ohio, the Philadelphia & Reading and the Central of New Jersey, with headquarters at Philadelphia, effective March 1. Prior to government control, Mr. Warrington was division superintendent of the Philadelphia & Reading, with headquarters at Philadelphia.

Traffic

A. H. Stevens has been appointed general agent of the St. Louis-San Francisco at Denver, Col.

H. J. Steeple, formerly general agent of the Erie at Seattle, Wash., has been appointed commercial agent, with the same headquarters.

J. E. Courteney has been appointed general agent in charge of the Chicago office of the Denver & Rio Grande and the Western Pacific.

W. M. Price has been appointed general agent of the Washash at San Francisco, Cal., the position he held prior to government control.

E. S. Blair, division freight agent of the Denver & Rio Grande, with headquarters at Salt Lake City, Utah, has been appointed general agent at Los Angeles, Cal.

L. B. Sheppard, formerly southwestern passenger agent for the Chicago & Alton, with office at Dallas, Tex., has been appointed general agent of the Missouri Pacific, with the same headquarters.

L. B. Banks has been appointed general agent of Southern Pacific Lines, at Denver, Colo., succeeding **L. C. Zimmerman**, who has been appointed division freight agent, with headquarters at Los Angeles, Cal.

James W. Daley, associate member of the Southern export committee of the United States Railroad Administration, with supervision over all Texas ports and with headquarters at Galveston, Tex., has been appointed assistant to the

traffic manager of the International & Great Northern, with the same headquarters.

D. T. Murray, assistant general superintendent of the third district of the New York Central, Lines West of Buffalo, with headquarters at Youngstown, Ohio, has been appointed general agent of the transportation and traffic departments, with the same headquarters.

Charles C. Clark, assistant general passenger agent on the Michigan Central, with office at Chicago, and during federal control manager of the consolidated ticket offices for the Eastern and Southern railroads at Chicago, has resigned the latter position, having been promoted to general passenger agent of the Michigan Central, with the same headquarters.

S. S. Butler, general freight agent of the St. Louis-San Francisco, with office at St. Louis, Mo., has been promoted to freight traffic manager, with the same headquarters. Mr. Butler began railroad service in 1890, as a clerk in the auditor's office of the Texas & Pacific at Dallas, Tex. In 1897 he was appointed relief agent and in 1898 traveling auditor for that road. In 1900 he entered the service of the St. Louis & San Francisco as chief clerk to the commercial agent at Dallas. He was consecutively to 1906, soliciting freight agent, traveling freight agent and commercial agent. On the latter date he was appointed general agent at Ft. Smith, Ark. The following year he was appointed general eastern agent, with headquarters at New York. In 1912 he was appointed traffic manager of the South Texas Lines, and in 1915 general southwestern agent, with office at Houston, Tex. In 1916 he was transferred to Pittsburgh, Pa., as general agent, which position he held until 1917, when he was promoted to assistant general freight agent, with headquarters at St. Louis. On December 1, 1919, he was promoted to general freight agent, which position he held until his recent promotion.

Mechanical

George C. Jones has been appointed general road foreman of engines of the Atlantic Coast Line, with headquarters at Florence, S. C.

B. J. Farr, superintendent of the motive power and car department of the Grand Trunk Western Lines, has moved his headquarters from Detroit, Mich., to Battle Creek.

Engineering, Maintenance of Way and Signaling

W. D. Wiggins, valuation engineer of the Pennsylvania, Lines West, who has been promoted to chief engineer maintenance of way of the Central region, with headquarters at Pittsburgh, Pa., as announced in the *Railway Age* of February 20 (page 599), was born at Richmond, Ind., April 28, 1873, and graduated from the Rose Polytechnic Institute at Terre Haute, Ind., in 1885. He began railroad work the same year with the Pennsylvania, Lines West, as an assistant in the engineering corps, being later promoted to assistant engineer on the Pittsburgh division. In June, 1901, he was promoted to division engineer maintenance of way, serving in this capacity on several different divisions until November, 1912, when he was promoted to superintendent of the Peoria division of the Vandalia. In July, 1913, he was appointed valuation engineer of the Lines West, remaining in that position until his recent appointment.

Special

George Bradshaw, supervisor of safety on the Grand Trunk, Western Lines, with headquarters at Detroit, Mich., has resigned and the position has been abolished. Safety-first work will be handled through the safety committees of the road.

R. S. Mitchell, during federal control chief of the secret service and police section of the Division of Operation of the United States Railroad Administration, has been re-appointed chief special agent of the Missouri Pacific, with headquarters at St. Louis, Mo., the position he held prior to government control.

General

The general offices of the Houston & Brazos Valley, now at Houston, Tex., have been relocated at Freeport, Tex.

ANN ARBOR

In addition to the officers of the Ann Arbor announced in the *Railway Age* of February 27 (page 658) and of March 5 (page 737), the following traffic appointments have been made:

A. Allison	General agent	Minneapolis, Minn.
T. M. Bell	"	Toledo, Ohio
C. H. Jackson	"	Pittsburgh, Pa.
A. B. Sell	"	Menominee, Mich.
I. W. Dudley	"	Seattle, Wash.

ARKANSAS & LOUISIANA MIDLAND

H. B. Hearn and H. R. Speed, receivers of the Arkansas & Louisiana Midland have announced the following appointments, effective March 1:

John W. Meehan.....	General manager.....	Monroe, La.
W. G. Gladney....	Aud'r & gen. frt. & pass. agt.	" "

ATLANTA, BIRMINGHAM & ATLANTIC

The organization of the Atlanta, Birmingham & Atlantic has been announced as follows:

B. L. Bugg.....	President	Atlanta, Ga.
J. L. Edwards....	Vice president.....	" "
A. V. B. Gilbert....	Secretary	" "
W. E. Paschall....	Treasurer	" "
C. E. Brower.....	General supt. trans.....	" "
L. L. Beall.....	Chief engineer.....	" "
J. F. Sheahan....	Supt. motive power.....	" "
E. L. Greene.....	Auditor	" "
W. W. Croxton....	Passenger traffic manager..	" "
C. B. Kealhofer....	Freight traffic manager....	" "
J. E. Tilford.....	General freight agent.....	" "
A. D. Daniel.....	Purchasing agent.....	" "
H. W. Colson....	General claim agent.....	" "
G. B. Matthews, Jr.	Car accountant.....	" "
Brandon & Hynds.	General counsel.....	" "
Dr. W. S. Elkins....	Chief surgeon.....	" "
W. S. Goldsmith....	Ast. chief surgeon.....	" "
V. E. Whitaker....	Superintendent	Birmingham, Ala.
R. H. McKay.....	"	Fitzgerald, Ga.
Fred Astin.....	Asst. superintendent.....	" "
Harry Huddleston.	"	Manchester, Ga.

Traffic Representatives

P. L. Graves.....	General agent.....	Atlanta, Ga.
J. W. Brown.....	Commercial agent.....	" "
G. A. Smith.....	District passenger agent....	" "
L. G. Scarboro....	Commercial agent.....	Birmingham, Ala.
H. J. Hansen.....	"	Chicago
J. J. McCarty.....	"	Cincinnati
C. D. Bercaw.....	General agent.....	Cordele, Ga.
F. H. Hill.....	Comm. agt. (frt. & pass.)....	Fitzgerald, Ga.
C. I. Allen.....	General agent.....	Jacksonville, Fla.
Jas. F. Carlton....	Commercial agent.....	Memphis, Tenn.
J. D. Boylston....	"	Nashville, Tenn.
H. G. Benedict....	Gen'l eastern agent.....	New York
Leo S. Siddons....	Gen'l western agent.....	St. Louis
H. H. Luther.....	Commercial agent.....	Talladega, Ala.
R. G. Parks.....	"	Tampa, Fla.
E. H. Fleming....	Comm. agt. (frt. & pass.)....	Thomasville, Ga.

Agricultural and Industrial Representatives

H. S. Young.....	Industrial agent.....	Atlanta, Ga.
W. R. Tucker.....	Agric. dev. & imm. agt.....	" "
G. B. Eunice.....	Agric. dev. agent.....	Fitzgerald, Ga.
J. W. Firor.....	Horticulturist	Montezuma, Ga.
H. L. Alsobrook....	Agric. dev. agent.....	Talladega, Ga.

ATLANTA & WEST POINT

The following appointments on the Atlanta & West Point, the Western Railway of Alabama and the Georgia Railroad have been announced by Charles A. Wickersham, president-general manager of these properties, with headquarters at Atlanta, Ga. The appointments apply to all three lines unless otherwise noted:

EXECUTIVE DEPARTMENT

W. H. Bruce.....	Sec., trs., A.&W.P.; W.of A.	Atlanta, Ga.
W. S. Morris.....	Treas., Ga. R. R.....	Augusta, Ga.

LEGAL DEPARTMENT

Brewster, Howell
and Heyman...Gen'l counsel, A.&W.P.R.R. Atlanta, Ga.
Steiner, Crum and
WeilGen'l counsel, W. of A. Montgomery, Ala.
Geo. P. Harrison...Advisory counsel, W. of A. Opelika, Ala.
Cumming & Har-
perGeneral counsel, Ga. R. R. Augusta, Ga.
F. R. Yarbrough...Chief law and special agt. Atlanta, Ga.
Dr. J. R. Garner...Chief surgeon. " "

ACCOUNTING DEPARTMENT

W. H. Smith....Comptroller Atlanta, Ga.
F. E. Winburn....Auditor and frt. cl. agt., A.
& W. P.; W. of A. " "
W. H. Vincent....Auditor, Georgia R. R. Augusta, Ga.
W. W. Hewitt....Frt. cl. agt., Georgia R. R. " "
L. J. Marbry....Chief traveling auditor. Atlanta, Ga.
J. S. Moss.....Stationer & agt. uncl. frt. " "

TRANSPORTATION DEPARTMENT

A. Moritz.....Supt. of transportation. Atlanta, Ga.
L. L. McDonald...Asst. to supt. of trans. " "
D. E. McGee....Trnmstr., A.&W.P.; W. of A. Montgomery, Ala.
W. H. Cooper....Chf. trn. disp. " "
John Laird....Trainmaster, Georgia R. R. Augusta, Ga.
R. B. Heath....Chf. train disp., Ga. R. R. Athens, Ga.
R. C. Campbell....Terminal manager. " "
E. W. Sandwich...Supt. car service. Atlanta, Ga.

MECHANICAL DEPARTMENT

F. O. Walsh....Supt. motive power. Atlanta, Ga.
R. P. Smith....Mechanical engineer. Augusta, Ga.
W. H. Eager, Jr....Electrical engineer. Montgomery, Ala.
J. H. Gaston....Mr. mech., A.&W.P.; W. of A. " "
John Sheen....Mr. car bldr., " " " "
O. H. Attridge....Master mech., Ga. R. R. Augusta, Ga.

ENGINEERING DEPARTMENT

O. T. Nelson....Chief engineer. Atlanta, Ga.
S. R. Young....Asst. chief engineer. " "
H. W. Seib....Consulting engineer. " "

PURCHASING AND STORES DEPARTMENT

R. T. Pace....Purchasing agent. Atlanta, Ga.
G. K. Williams...Fuel agent. " "

TRAFFIC DEPARTMENT

F. G. Bennett....General agent, W. of A. Montgomery, Ala.
A. G. Jackson....General agent, Ga. R. R. Augusta, Ga.
G. E. Boulineau...General freight agent. Atlanta, Ga.
F. G. Browder, Jr. Asst. gen'l freight agent. " "
C. E. Rodenberg... " " " " " "
J. P. Billups....General passenger agent. " "
J. A. Higgins....Asst. gen'l passenger agt. " "
E. S. Center....Industrial agent. " "

BALTIMORE & OHIO

C. W. Galloway, vice-president in charge of operation and maintenance of the Baltimore & Ohio, has announced the following appointments, which are in addition to those given in the Baltimore & Ohio's list of officers on page 737 of the *Railway Age* of March 5:

F. E. Blaser....Asst. to vice president. Baltimore, Md.
In charge of Bureau of Wages Working Conditions and Bureau of Employment and Discipline.
J. R. Kearney....Asst. to vice president. Baltimore, Md.
In charge of Executive Relations American Railway Association and Car Service matters.
L. C. Sauerhammer, Asst. to vice president. Baltimore, Md.
In charge of Improvement Authorities, Contracts and Agreements, Budget Allotments and Operating Statistics.
C. Selden....Gen'l insp. of trans. Baltimore, Md.

In the announcement in last week's issue, page 737, through an inadvertence, the engineering department appointments of the Wabash were included with the Baltimore & Ohio. The Wabash appointments are headed by A. O. Cunningham, chief engineer, with headquarters at St. Louis, Mo. The Baltimore & Ohio engineering appointments are correctly given further down in the column, and are the five names, the first of which is L. G. Curtis, chief engineer, adjustment division, with headquarters at Baltimore.

There was also an error in the inclusion of J. R. Onderdonk, engineer of tests, Baltimore, under the head "Mechanical Department." The engineer of tests reports to the vice-president in charge of operation and maintenance and his work covers all departments of the railroad.

BALTIMORE & OHIO CHICAGO TERMINAL

The personnel of the Baltimore & Ohio Chicago Terminal, as effective on its return to private control, is in part as follows:

F. C. Batchelder...President Chicago
E. M. Devereux...Treasurer Baltimore
H. H. Hall....Asst. sec. and asst. treas. Chicago
T. H. Schultz...Asst. treasurer. Baltimore
J. J. Ekin....Comptroller " "
F. B. Huntington...General auditor. " "
H. A. Lane....Chief engineer. " "
L. G. Curtis....Asst. chief engineer. " "
C. H. Moran....Real estate agent. Chicago

BOSTON & MAINE

The organization of the Boston & Maine and of its subsidiaries, the St. Johnsbury & Lake Champlain, the Montpelier & Wells River, the Barre & Chelsea, the Vermont Valley, the Sullivan County, and the York Harbor & Beach, have been announced as follows:

EXECUTIVE DEPARTMENT

Jas. H. Hustis....President Boston
W. Hudson....V. pres., gen. coun.; law,
real est. and taxes. " "
William J. Hobbs...V. p., finance and acct. " "
Benj. R. Pollock...V. p., gen. mgr., op. & main. " "
Gerrit Fort....V. p., traffic. " "
H. R. Wheeler...Treasurer " "
A. B. Corthell...Chief engineer. " "
A. W. Munster...Purchasing agent. " "
G. H. Bavier....Asst. to president. " "
D. S. Brigham.... " " " " " "
W. J. Cunningham...Consulting assistant. " "

TREASURY DEPARTMENT

H. R. Wheeler...Treasurer Boston
C. N. Marland...Asst. treasurer. " "
F. S. Heath.... " " " " " "
N. G. Hill....Paymaster Concord, N. H.
Boston

LEGAL DEPARTMENT

W. Hudson....V. p. and gen. counsel. Boston
A. P. Mackinnon...General solicitor. " "
R. T. Damon....General claim agent. " "
C. M. Macdonald...Acting freight claim agent. " "
E. A. Ryder....Real estate agent. " "

ACCOUNTING DEPARTMENT

Wm. J. Hobbs....Vice president. Boston
W. S. Trowbridge...Comptroller " "
M. C. Bradley....Asst. compt., disbursements. " "
J. F. Turner....Asst. compt., revenues. " "
H. G. Etheridge...Auditor of disbursements. " "
N. H. Ricker....Auditor freight receipts. " "
W. H. Young....Auditor passengers receipts. " "
W. C. Crutwys...Auditor miscel. accounts. " "
G. F. Glacy....Asst. to aud., miscel. accts. " "
W. J. Harrod....Special agent. " "
A. M. Phillips....Accountant " "
J. J. Demeritt....Auditor agencies. " "

OPERATING DEPARTMENT

Benj. R. Pollock...V. pres. and gen. mgr. Boston
L. G. Coleman....Asst. gen. mgr., main., equip. " "
A. H. Slader....Asst. to v. p. & gen. mgr. " "

Transportation—First District

W. R. Mooney....Act. gen. supt. Boston
G. H. Folger....Asst. gen. supt. " "
J. P. Quilty....Supt., Terminal div. " "
G. H. Foote....Pass. trnmstr., Terminal div. " "
F. C. Choate....Asst. pass. trainmaster. " "
W. J. Wright....Frt. trnmstr., Terminal div. " "
J. M. Sullivan....Asst. trnmstr., Terminal div. " "
J. Rourke....Supt., Portland div. " "
A. P. Milliken....Asst. supt., Portland div. " "
W. S. Keay....Trainmaster, Portland div. Lawrence, Mass.
A. S. Twombly.... " " " " " " " " " " " "
J. E. Mahoney.... " " " " " " " " " " " "
A. P. Little....Act. trnmstr., Portland div. Salem, Mass.
H. C. Robinson...Act. supt., Southern div. Concord, N. H.
A. F. Garey....Trainmaster, Southern div. " "
F. P. Fosgate.... " " " " " " " " " " " "
M. Durfee.... " " " " " " " " " " " "
A. B. Schute.... " " " " " " " " " " " "
T. W. Sutherland... " " " " " " " " " " " "
F. H. Flynn....Supt., Fitchburg div. Greenfield, Mass.

Boston & Maine (Continued)

R. A. Murray....Trainmaster, Fitchburg div. E. Deerfield, Mass.
 A. A. McCarthy...." " " " No. Sta., Boston
 E. C. Goodnow...." " " " Fitchburg, Mass.
 C. F. Wherren...." " " " Boston
 J. D. Bourne....Supt., Berkshire div.No. Adams, Mass.
 R. O'Bryan....Trainmaster, Berkshire div. Greenfield, Mass.
 J. P. Sullivan...." " " " Mechanicville, N.Y.
 W. H. Ford....Supt., W. N. & P. div.Nashua, N. H.
 B. Thomas....Asst. supt., W. N. & P. div." "
 F. C. Pelletier....Trainmaster, W. N. & P. div. Worcester, Mass.

Transportation—Second District

H. E. Folsom....General superintendent....Lyndonville, Vt.
 F. C. Mayo....Supt., White Mountains div. Woodsville, N. H.
 G. H. Kidder....Asst. supt., White Mns. div." "
 F. L. Sargent....Trainmaster, White M. div." "
 J. A. Ahern....Supt., Passumpsic div.Lyndonville, Vt.
 C. M. Woodward....Supt., Connecticut Riv. div. Springfield, Mass.
 A. P. Abbott....Trainmaster, Conn. Riv. div." "
 S. E. Miller....Supt. transportation....Boston
 F. A. Hortter....Car accountant" "
 W. H. Kimball....Demurrage adjuster...." "

Mechanical

C. H. Wiggin....Supt. motive power....Boston
 C. B. Smith....Mechanical engineer...." "
 D. A. Smith....Master mechanic....E. S'm'ville, Mass.
 C. S. Hall...." " " " E. C'mbr'ge, Mass.
 L. C. Todd...." " " " Charlestown, Mass.
 W. H. Rieckman...." " " " Mech'ville, N.Y.
 W. W. Hodgkins...." " " " Worcester, Mass.
 G. A. Wyman...." " " " Concord, N. H.
 J. A. Locher...." " " " Springfield, Mass.
 H. F. Wood...." " " " Lyndonville, Vt.
 J. Wahlen...." " " " Montpelier, Vt.
 T. Jennings....Superintendent shop....Billerica, Mass.
 D. E. Davis...." " " " Somerville, Mass.
 F. H. Eddy...." " " " E. Fitchb'rg, Mass.
 R. W. Band....General shop inspector....Boston
 J. Craig...." " " " " "
 H. A. Bliss....Gen'l air brake inspector...." "
 E. T. Millar....General car inspector...." "
 A. Craig....General foreman....Charlestown, Mass.

Maintenance of Way and Structures

F. A. Merrill....Engineer, maint. of way....Boston
 G. K. Thornton....Div. engr., Portland div. Salem, Mass.
 R. W. Osborne....Asst. div. engr., Port. div." "
 A. C. Stickney....Div. engr., Southern div. Concord, N. H.
 O. J. Chase....Asst. engr., Southern div." "
 J. L. Shanks....Div. engr., Fitchburg div. Fitchburg, Mass.
 R. H. Parke....Asst. div. engr., Fitch. div." "
 J. P. Canty....Div. engr., Berkshire div. No. Adams, Mass.
 J. F. Whitney....Asst. engr., Berkshire div." "
 R. Burroughs....Div. engr., W. N. & P. div. Nashua, N. H.
 A. W. Gardner....Asst. engr., W. N. & P. div." "
 G. H. Watson....Div. engr., White Mns. div. Woodsville, N. H.
 L. N. Wheelock....Asst. engr., White Mns. div." "
 F. E. Sampson....D. engr., Conn. R. & P. div. St. Johnsbury, Vt.
 R. W. Hamilton....Asst. engr., C. R. & P. div." "
 J. J. Rourke....Div. engr., Terminal div. Boston
 B. F. Pickering....S'p'rvis'r, B. & B., Port. div. Salem, Mass.
 A. I. Gauthier....Spv'sr., B. & B., South. div. Concord, N. H.
 J. E. Buckley....Spv'sr., B. & B., Fitch. div. Fitchburg, Mass.
 E. B. Piper....Spv'sr., B. & B., Berk. div. No. Adams, Mass.
 T. W. Sughrue....Spv'sr., B. & B., W. N. & P. div. Nashua, N. H.
 J. H. Fullerton....Spv'sr., B. & B., Wh. M. div. Woodsville, N. H.
 L. M. Blake....Spv'sr., B. & B., C. R. & Pass. div. St. Johnsbury, Vt.
 S. P. Coffin....Spv'sr., B. & B., Term. div. Boston

Stores

J. E. Byron....General storekeeper....Boston

W. Y. Scott....Signal engineer....Boston
 R. R. Stackpole....Supt. of telegraph...." "
 C. G. Jaycock....Supt. of dining cars...." "
 H. W. Davis....Inspector, pass. train serv." "
 R. Bradley....Inspector of fuel service...." "
 M. O. Sargent....Chief of police...." "
 S. G. Watkins....Gen'l sec'y, safety dept." "

ENGINEERING DEPARTMENT

A. B. Corthell....Chief engineer....Boston
 F. C. Shepherd....Prin. asst. engineer...." "
 L. L. Huckins....Cons. engr., eastern...." "
 C. J. Griffin....Cons. engr., western...." "
 R. J. Hammond....Office engineer...." "
 B. W. Guppy....Engineer of structures...." "

Pusey Jones....Bridge engineer....Boston
 H. B. Fletcher....Architect" "
 F. D. Hall....Electrical engineer...." "
 H. J. Sargent....Asst. ch. engr., val. & r. est." "
 F. B. Rowell....Research engineer...." "
 J. B. Russell....Real estate engineer...." "
 W. F. Cummings....Asst. val. engineer...." "

PURCHASING DEPARTMENT

A. W. Munster....Purchasing agent....Boston
 H. J. Saabye....Asst. purchasing agent...." "
 J. R. Rooks....Fuel agent...." "
 J. J. Callahan....ChemistBillerica shops

TRAFFIC DEPARTMENT

Gerrit Fort....Vice president....Boston
Freight

W. T. LaMoure....Freight traffic manager....Boston
 G. H. Eaton....Asst. freight traffic mgr...." "
 E. W. Abbott....General freight agent...." "
 A. E. Prescott....Asst. gen'l freight agent...." "
 J. W. Rimmer...." " " " " "
 F. F. Farrar....General agent...." "
 J. R. MacAnanny....Chief of tariff bureau...." "
 C. E. Leavitt....Division freight agent....Concord, N. H.
 E. F. Smallwood...." " " " Springfield, Mass.
 E. C. Otis...." " " " Troy, N. Y.

Passenger

F. T. Grant....General passenger agent....Boston
 F. A. McCormick....Asst. gen. pass. agent...." "
 W. H. Shepherd....District passenger agent....Springfield, Mass.
 F. D. Gourley...." " " " Boston
 L. J. McNamara...." " " " " "
 G. V. Worthen....General baggage agent...." "

Milk, Mail and Express

W. C. Harriman....ManagerBoston

CHICAGO, BURLINGTON & QUINCY

In addition to the appointments on the Chicago, Burlington & Quincy noted in the *Railway Age* of February 27, page 660, the following officers have been appointed:

H. E. Jarvis....Assistant secretary....Chicago
 C. J. Ernst....Asst. secy. and asst. treas. Omaha, Neb.
 C. M. Carter....Assistant treasurer....St. Joseph, Mo.
 H. D. Foster....General auditor....Chicago
 E. T. Nichols....Fiscal agent....New York City
 N. Terhune...." " " " " "
 M. H. Niles....Transfer agent...." " " "
 N. Stockhammer...." " " " " "

The following appointments have been made in the traffic department of the Chicago, Burlington & Quincy:

Geo. H. Crosby....Asst. to vice president....

Freight

H. H. Holcomb....Freight traffic manager....Chicago
 E. R. Puffer....Asst. freight traffic mgr...." "
 George Morton...." " " " " "
 W. G. Wagner....General freight agent...." "
 H. E. Heller...." " " " St. Louis, Mo.
 F. Montmorency...." " " " Omaha, Neb.
 L. C. Mahoney....Asst. gen. freight agent....Chicago
 R. B. Battey...." " " " " "
 W. W. Johnston...." " " " Omaha, Neb.
 J. B. Driggs...." " " " " "
 J. F. Vallery...." " " " Denver, Colo.
 F. A. Hart...." " " " Kansas City, Mo.
 Geo. P. Lyman...." " " " St. Paul, Minn.
 F. E. Hollingshead...." " " " St. Joseph, Mo.

Passenger

P. S. Eustis....Passenger traffic manager....Chicago
 J. Francis....General passenger agent...." "
 F. E. Bell....Asst. gen. pass. agent...." "
 A. Cotsworth, Jr...." " " " " "
 L. W. Wakeley....General passenger agent....Omaha, Neb.
 W. A. Lalor...." " " " St. Louis, Mo.
 J. E. Buckingham....Gen. bag., mail & ex. agt....Chicago
 L. H. Stebbins....Asst. gen. baggage agent...." "

CHICAGO GREAT WESTERN

All officers and employees of the Chicago Great Western during federal control continue in their respective positions, with the same titles, from March 1, with the exception of the following new appointments:

W. L. Park.....Vice president, operation...Chicago
 C. F. Krebs.....General auditor....."
 J. F. Coykendale..Treasurer....."
 W. L. Sullivan...Asst. to pres., adj. of accts.."

CHICAGO, MILWAUKEE & GARY

The following officers have been appointed on the Chicago, Milwaukee & Gary:

C. G. Nelson.....Sec., treas. & auditor.....Rockford, Ill.
 F. A. Winkler.....Assistant auditor....."
 C. E. Swenson.....Pur. agent & storekeeper.."
 A. D. Early.....General attorney....."
 I. W. Troxel.....Chief engineer.....Chicago
 R. E. Owen.....Asst. gen. frt. & Pass. agt.."
 H. W. Person.....General agent.....Rockford, Ill.
 W. E. Becker.....Superintendent....."
 Thos. Hickson...Master mechanic....."
 J. I. McConnell...Foreman car department.."
 Gust Swanson...Roadmaster....."
 C. S. Andrus.....Chief surgeon....."

CHICAGO, ROCK ISLAND & PACIFIC

The executive organization of the Chicago, Rock Island & Pacific has been announced as follows:

Charles Hayden..Chairman of the board...New York
 James E. Gorman..President.....Chicago
 M. L. Bell.....Vice pres. & gen. counsel..Chicago & N. Y.
 L. C. Fritch.....V. P. con., maint., & cap. ex..Chicago
 F. Nay.....Vice pres. and controller.."
 T. H. Beacom...Vice pres. and gen. mgr...."
 S. H. Johnson...Vice pres. and frt. traf. mgr.."
 L. M. Allen.....V. P. and pass. traf. mgr.."
 F. D. Reed.....Vice pres. and pur. agt...."
 Carl Nyquist...Secretary and treasurer...."

Other appointments have been announced as follows:

F. A. Adams.....Asst. gen. frt. agent.....Chicago
 C. R. Maier....."....."

COLORADO & SOUTHERN

In addition to the appointments on the Colorado & Southern noted in the *Railway Age* of February 27, page 660, the following officers have been appointed:

R. C. Gowdy.....Chief engineer.....Denver, Colo.
 W. H. Hess.....Valuation engineer....."
 W. C. Weldon...Purchasing agent....."

DENVER AND SALT LAKE

The following appointments have been made on the Denver & Salt Lake:

Milton Smith....General solicitor.....Denver, Colo.
 E. W. Meyer.....Assistant to receiver....."
 F. J. Toner.....Gen. frt. and pass. agent..."
 S. S. Meyer.....Auditor....."
 A. F. Dodd.....Treasurer....."
 M. L. Phelps....General superintendent..."
 M. B. McPartland..Supt. of motive power....."
 L. D. Blauvelt...Consulting engineer....."
 V. B. Wagner....Chief engineer....."
 A. L. Cochrane...Purchasing agent....."

DETROIT, TOLEDO & Ironton

The following officers of the Detroit, Toledo & Ironton have been elected, or appointed:

J. A. Gordon....President.....Detroit, Mich.
 G. W. Eckerle...Asst. to pres. & pur. agt...."
 H. A. Fidler....General traffic mgr....."
 E. B. Dudley....General auditor....."
 Leo M. Butzel...General counsel....."
 Sam R. Williams..General attorney....."
 F. E. Remsburg...General claim agent....."
 L. L. Syman.....Supt. medical dept.....Springfield, Ohio
 C. J. Kavanagh...Gen. superintendent....."
 H. B. Watters...Chief engineer....."
 C. P. Burgman...Supt. m. p. & equip.....Jackson, Ohio
 K. Chorley.....Supt. car service.....Springfield, Ohio
 G. V. Booth.....General storekeeper.....Jackson, Ohio

DULUTH & IRON RANGE

The following now constitutes the official organization of the Duluth & Iron Range:

F. E. House.....President.....Duluth, Minn.
 J. H. McLean....First vice president....."
 J. H. Harding...Second vice president....."
 Thos. Owens....Superintendent.....Two Harbors, Mn.
 H. Johnson.....Sec., aud., gen. frt.-pass. agt..Duluth, Minn.
 Thomas Murray..Asst. sec. & asst. treas.....New York
 F. D. Adams....General solicitor.....Duluth, Minn.
 E. F. Blu.....Asst. gen. solicitor....."
 E. H. Windom...General claim agent....."
 B. R. Moore....Supt. motive power & cars..Two Harbors, Mn.
 F. C. Marshall...Treasurer.....Duluth, Minn.
 R. P. Moore....Purchasing agent....."
 W. A. Clark....Chief engineer....."

FORT WORTH & DENVER CITY-WICHITA VALLEY

The officers of the Fort Worth & Denver City and the Wichita Valley have been announced as follows:

Hale Holden....Pres. and ch. ex. comm....Chicago
 C. G. Burnham...Ex. vice pres....."
 H. R. Safford...Asst. to the pres....."
 F. E. Clarity....Vice pres. and gen. mgr...Fort Worth, Tex.
 W. O. Hamilton...Sec. and treas....."
 J. H. Barwise, Jr..General attorney....."
 J. H. Bradbury...Comptroller.....Denver, Col.
 W. C. Logan....General auditor.....Fort Worth, Tex.
 R. C. Gowdy....Chief engineer.....Denver, Col.
 W. H. Hess.....Valuation engineer....."
 J. A. Hulen....Traffic manager.....Fort Worth, Tex.
 W. F. Sterley...Gen. freight & Pass. agt...."
 S. A. Covington...Acting gen. supt....."
 M. A. Stainer...Engineer M. of W....."
 W. C. Weldon...Purchasing agent.....Denver, Col.

GALVESTON, HOUSTON & HENDERSON

Officers of the Galveston, Houston & Henderson have been announced as follows:

G. W. Davisson..President.....New York
 J. H. Hill.....Vice pres., sec. & treas....Galveston, Tex.
 G. G. Moore....Gen. mgr. & asst. treas...."
 M. M. Murray....Auditor....."

GULF COAST LINES

The following appointments have been made on the Gulf Coast Lines:

J. E. Anderson...Asst. to pres.....Houston, Tex.
 C. S. Kirkpatrick..Chief engineer....."
 J. W. Wood.....Supt. of telegraph....."
 J. L. Lavallee...Mechanical superintendent..Kingsville, Tex.

The following appointments have been made in the traffic department of these lines:

Passenger

F. M. McClure...Asst. gen. pass. agt.....Houston, Tex.
 E. A. Farr.....Div. pass. agent....."
 Mark Anthony...Gen. pass. agent.....New Orleans, La.
 Randall E. Knight..Trav. pass. agent....."
 A. J. Ball.....Southeastern pass. agent...Atlanta, Ga.

Freight

J. W. Hailey....General agent.....New Orleans, La.
 J. B. Graham....Export & import agent...."
 W. M. McMillan...Commercial agent....."
 W. J. Cousins....Soliciting frt. agent....."
 B. H. Taylor....General agent.....Houston, Tex.
 H. A. Vallas....Soliciting frt. agent....."
 J. W. Williams...General agent.....Beaumont, Tex.
 W. B. Craig....General agent.....Corpus Christi, Tx.
 J. D. Gowin....".....Chicago
 R. C. Foote....Commercial agent....."
 W. W. Stine....General agent.....Birmingham, Ala.
 C. W. Adams....Commercial agent....."
 C. N. Gray....General agent.....Dallas, Tex.
 E. G. Waring....Commercial agent....."

GULF, MOBILE & NORTHERN

The following is the organization of the Gulf, Mobile & Northern and of the Meridian & Memphis, effective on its return to private control:

I. B. Tigrett....President.....Mobile, Ala.
 E. D. Hogan....Vice pres. & gen. mgr....."
 J. C. Rich.....General solicitor....."
 T. D. Geoghegan..Traffic manager....."
 F. M. Hicks....Comptroller....."

Gulf, Mobile & Northern (Continued)

J. J. McEwen.....	Treasurer	Mobile, Ala.
H. G. Reiser.....	Purchasing agent	" "
H. F. Ricker.....	Asst. to gen. mgr.	" "
A. F. Church.....	Supt. Mobile-Louisville div.	Laurel, Miss.
J. B. Hobbs.....	Supt. N. Albany-Jack. div.	New Albany, Miss.
D. W. Davis.....	Supt. of car service	Laurel, Miss.
B. H. Gray.....	Supt. of motive power	Mobile, Ala.
Jas. O'Neal.....	Foreman car dept.	" "
L. W. Duffee.....	Chief engineer	Laurel, Miss.
P. L. Stacker.....	Valuation and spec. engr.	Mobile, Ala.
W. F. McDade.....	Gen. foreman B. & B.	Laurel, Miss.
G. H. Greer.....	Storekeeper	Mobile, Ala.
J. J. Henry.....	General agent	Laurel, Miss.
W. Blount, M.D.....	Chief surgeon	" "

HOCKING VALLEY

The following appointments have been made on the Hocking Valley, effective March 1: These are additional to those given in the *Railway Age* of March 5, page 742.

H. O. Wasson.....	Gen. frt. agt.	Columbus, Ohio
W. H. Fisher.....	Gen. pass. agt.	" "

HOUSTON & BRAZOS VALLEY

The following appointments, effective March 1, have been announced by George C. Morris, receiver of the Houston & Brazos Valley, with headquarters at Freeport, Tex.:

C. J. Rogan.....	Superintendent	Freeport, Tex.
J. R. Johnson.....	Auditor	" "
J. E. Reed.....	Traffic manager	" "
W. C. McLendon.....	Treasurer	" "
A. E. Masterson.....	General attorney	" "

LAKE ERIE & WESTERN

The following officers have been appointed on the Lake Erie & Western:

A. D. Thomas.....	Treasurer	Indianapolis, Ind.
W. H. Elmendorf.....	Auditor	" "

LOS ANGELES & SALT LAKE

The organization of the Los Angeles & Salt Lake has been announced, in part, as follows:

W. A. Clark.....	President	New York
Carl R. Gray.....	First vice president	Omaha, Neb.
J. Ross Clark.....	Second vice president	Los Angeles, Cal.
C. P. Smith.....	Secretary	" "
F. C. Loofbourov.....	Asst. secretary	Salt Lake C., Utah
J. H. Anderson.....	"	New York
W. H. Comstock.....	General manager	Los Angeles, Cal.
W. H. Leete.....	Treasurer	" "
A. S. Halsted.....	General counsel	" "
A. S. Edmonds.....	General traffic manager	" "
C. C. Barry.....	Auditor	" "
Arthur Maguire.....	Chief engineer	" "

LOUISIANA & ARKANSAS

The following appointments have been announced in the traffic department of the Louisiana & Arkansas:

B. S. Atkinson.....	Traffic manager	Texarkana, Ark.
J. R. McClurken.....	Asst. gen. frt. & pass. agt.	" "
H. R. Whiting.....	General agent	Alexandria, La.
F. A. Key, Jr.....	"	Shreveport, La.

MISSISSIPPI CENTRAL

The following is the organization of the Mississippi Central:

F. L. Peck.....	President	Scranton, Pa.
M. D. Fohey.....	Gen. mgr. (on lve of ab.)	Hattiesburg, Miss.
Chas. Ehlers.....	Act. gen. mgr.	" "
T. Brady, Jr.....	General counsel	Brookhaven, Miss.
H. R. Wilson.....	Traffic manager	Hattiesburg, Miss.
H. O. Hoffman.....	Purchasing agent	" "

MISSOURI, KANSAS & TEXAS LINES

In addition to the officers appointed on the Missouri, Kansas & Texas Lines, and announced in the *Railway Age* of March 5, page 745, the following has been announced as the personnel of the Missouri, Kansas & Texas:

F. Ringer.....	Chief engineer	St. Louis, Mo.
E. L. Martin.....	Asst. chief engineer	Dallas, Tex.
B. J. Dalton.....	Valuation engineer	Parsons, Kan.

F. K. Tutt.....	Mechanical supt.	Denison, Tex.
W. H. Maddocks.....	Mechanical engineer	Parsons, Kan.
W. A. Mitchell.....	Supt. car department	Denison, Tex.
H. H. Johtntz.....	Engr., maintenance of way	Parsons, Kan.
J. F. Hickey.....	Superintendent	Sedalia, Mo.
S. B. Moore.....	"	Parsons, Kan.
D. S. Murphy.....	"	Muskogee, Okla.
J. H. Little.....	"	Oklahoma City
A. E. Boughner.....	Terminal superintendent	St. Louis, Mo.
O. C. Smith.....	Supt. car service	Dallas, Tex.
W. H. Hall.....	Gen. supt. telegraph	Denison, Tex.
D. C. Hudspeth.....	Supt. telegraph	Parsons, Kan.
J. A. Johnson.....	Signal engineer	Denison, Tex.
J. L. Walsh.....	Supt. of safety	Dallas, Tex.
E. F. Yancey.....	Chief surgeon	Sedalia, Mo.
W. F. Hayes.....	Supt. time service	St. Louis, Mo.

In addition to those mentioned above, the following officers have been appointed on the Missouri, Kansas & Texas of Texas:

E. M. Moursund.....	Engr., maint. of way	Dallas, Tex.
E. E. Hanna.....	Superintendent	Denison, Tex.
R. R. Farmer.....	"	Greenville, Tex.
J. W. Evens.....	"	Waco, Tex.
O. W. Campbell.....	"	Smithville, Tex.
A. M. Acheson.....	"	Trinity, Tex.
F. W. Grace.....	"	Wichita Falls, Tex.
J. A. Johnson.....	Signal engineer	Denison, Tex.
Drs. Webb & Lott.....	Chief surgeons	Dallas, Tex.
E. H. Coombs.....	Special representative	Houston, Tex.

MISSOURI PACIFIC

In addition to the appointments on the Missouri Pacific noted in the *Railway Age* of February 27, page 658, and of March 5, page 745, the following officers have been appointed in the traffic department of this company:

C. L. Stone.....	Pass. traffic manager	St. Louis, Mo.
A. D. Bell.....	Asst. pass. traffic manager	" "
J. G. Hollenbeck.....	Gen. pass. agent	" "
H. H. Butler.....	Asst. gen. pass. agent	" "
H. H. Muchall.....	Asst. gen. pass. agent	" "
C. K. Bothwell.....	Asst. gen. pass. agent	Little Rock, Ark.
L. M. Hill.....	Supt. parlor & dining cars	St. Louis, Mo.
W. H. Bissland.....	General baggage agent	" "
M. L. Fuller.....	Colonization & advt. agt.	" "
W. A. Rambach.....	Freight traffic manager	" "
D. R. Lincoln.....	Asst. frt. traffic manager	" "
O. G. Parsley.....	"	" "
C. C. P. Rausch.....	"	" "
W. I. Jones.....	"	" "
R. M. Dozier.....	"	Chicago
G. H. Hamilton.....	General freight agent	Kansas City, Mo.
R. McWilliams.....	"	Little Rock, Ark.
O. C. Olsen.....	Foreign freight agent	St. Louis, Mo.
E. Mock.....	Asst. gen. frt. agent	" "
W. H. Thompson.....	"	" "
P. J. McCarthy.....	"	" "
W. B. Shirk.....	Gen. live stock agent	Kansas City, Mo.

Traffic department agencies have been established as follows:

Passenger

Garland Tobin.....	General agent	Atlanta, Ga.
T. D. Moss.....	"	Birmingham, Ala.
J. A. Russell.....	Traveling pass. agt.	Chicago
J. A. Steltenkamp.....	General agent	Cincinnati, Ohio
L. B. Shepherd.....	"	Dallas, Tex.
L. M. White.....	"	Detroit, Mich.
Ellis Farnsworth.....	Division pass. agent	Kansas City, Mo.
H. R. Bingham.....	General agent	Los Angeles, Cal.
H. D. Wilson.....	Division pass. agent	Memphis, Tenn.
W. H. Donny.....	General agent	New York
T. F. Godfrey.....	Division pass. agent	Omaha, Neb.
W. H. Richmond.....	General agent	Pittsburgh, Pa.
J. J. McQueen.....	"	Salt Lake City, U.
C. M. Fowler.....	"	Seattle, Wash.
J. M. Griffin.....	Division pass. agent	St. Louis, Mo.

Freight

Dan Jacobs.....	Asst. gen. freight agent	Alexandria, La.
C. C. Cloutman.....	Division freight agent	Archison, Kan.
F. J. Kemper.....	General agent	Atlanta, Ga.
Paul Escott.....	"	Birmingham, Ala.
H. V. Gregory.....	Division freight agent	Cairo, Ill.
W. C. Staley.....	General agent	Chicago
R. Meyer.....	"	Cincinnati, Ohio
Guy A. Deuel.....	"	Dallas, Tex.
W. H. Fraser.....	"	Denver, Colo.

L. M. White....General agent.....Detroit, Mich.
 J. J. Eddy.....Division freight agent.....East St. Louis, Ill.
 C. E. Carstarphen.....".....Ft. Smith, Ark.
 H. G. Brower....General agent.....Ft. Worth, Tex.
 C. H. Pugh.....".....Houston, Tex.
 C. M. Davis.....Division freight agent.....Hutchinson, Kan.
 Clyde Hogsett....".....".....Joplin, Mo.
 J. D. Yates.....".....".....Kansas City, Mo.
 E. E. Gibson.....".....".....Lake Charles, La.
 H. T. Guinn.....".....".....Lincoln, Neb.
 W. W. Trimble....".....".....Little Rock, Ark.
 W. C. Dibblee....General agent.....Los Angeles, Cal.
 C. Bourne, Jr....Asst. gen. freight agent.....Memphis, Tenn.
 F. H. Donahue....General agent.....Milwaukee, Wis.
 R. B. Wilson.....".....".....Minneapolis, Minn.
 Norton England...Asst. gen. freight agent.....New Orleans, La.
 J. B. Trimble....General agent.....New York
 J. R. Duckworth..Asst. gen. freight agent.....Omaha, Neb.
 W. B. Wier.....Division freight agent.....Pine Bluff, Ark.
 C. C. McCarthy..General agent.....Pittsburgh, Pa.
 P. E. Watson....Division freight agent.....Pueblo, Colo.
 J. J. Kavanaugh..General agent.....Salt Lake City, U.
 W. D. Young.....".....".....San Antonio, Tex.
 W. M. Cook.....".....".....San Francisco, Cal.
 C. M. Fowler....".....".....Seattle, Wash.
 V. J. Kaiser.....Division freight agent.....Sedalia, Mo.
 N. A. Beach.....".....".....St. Joseph, Mo.
 George Kassling..".....".....St. Louis, Mo.
 L. D. Nicholson... ".....".....Texarkana, Ark.
 R. R. Trimble....General agent.....Tulsa, Okla.
 F. E. Walling....Division freight agent.....Wichita, Kan.

NEW YORK CENTRAL

A portion of the New York Central organization was given in the *Railway Age* of March 5, page 745. Additional appointments, effective March 1, have been made as follows:

A. E. Calkins....Supt. rolling stock—East...New York
 J. W. Senger....Supt. rolling stock—West...Buffalo
 Geo. Thomson...M. C. B., 3d Dist. (West)...Collinwood, Ohio
 James Reed....M. C. B., 4th Dist. (West)...Englewood, Ill.
 Alfred Herbst...Asst. M.C.B., 4th Dist. (W.)...."

NEW YORK, CHICAGO & ST. LOUIS

In addition to the officers on the New York, Chicago & St. Louis announced in the *Railway Age* of March 5 (page 745), the following appointments have been made:

H. J. Holden....Auditor.....Cleveland, Ohio
 J. G. Alexander..Assistant treasurer....."

NEW YORK, NEW HAVEN & HARTFORD

The executive department organization of the New York, New Haven & Hartford was given in the *Railway Age* of February 27, page 657, and that of the accounting department in the issue of March 5, page 745. The remainder of the organization is announced as follows:

C. L. Bardo.....General manager.....New Haven, Conn.
 E. Gagel.....Chief engineer....."....."
 H. L. Ripley....Corp. and val. engr.....Boston
 G. G. Yeomans...General purchasing agent...New Haven, Conn.
 G. W. Hayden...Asst. pur. agt. & gen. st. kp. "....."
 E. G. Riggs.....Executive assistant.....New York
 W. S. Rathbun...General assistant....."
 Richard Hackett..Asst. V. P. in chrg. traffic..New Haven, Conn.
 A. B. Smith.....General pass. agent....."....."
 G. M. Wood.....General freight agent....."....."

NORFOLK SOUTHERN

A portion of the new organization of the Norfolk Southern was given in the *Railway Age* of February 27, page 658. The following gives the new appointments complete:

M. J. Perry.....Chairman bd. of directors..New York
 R. H. Swartwout..Vice chair., board....."
 J. H. Young.....President.....Norfolk, Va.
 M. S. Hawkins...Asst. to pres. and sec....."
 C. I. Millard....Vice president....."
 E. D. Kyle.....Vice president, traffic....."
 J. F. Dalton....Gen. freight and pass. agt.."
 W. B. Rodman...General solicitor....."
 Matthias Manly..Treasurer....."
 J. F. George....Asst. treasurer....."

G. E. Christie....Asst. secretary.....New York
 J. C. Nelms, Jr..General auditor.....Norfolk, Va.
 A. Winslow.....Auditor of receipts....."
 C. W. Akers.....Gen. supt. steam lines....."
 L. B. Wickersham..G. supt.-elec. engr. elec. ins. "....."
 F. L. Nicholson...Chief engineer....."
 L. M. Jones.....Purchasing agent....."
 Dr. R. L. Payne..Chief surgeon....."
 C. P. Dugan.....Supt. transportation....."
 J. W. Sasser.....Supt. of motive power....."
 John Dwyer.....Supt. maint. of way....."
 J. H. Barrett....General claim agent....."
 J. L. Pettus.....Chief of police....."
 J. M. Shea.....Supt. Northern div....."
 J. C. Lewis.....Supt. Central div.....Newbern, N. C.
 J. S. Cox.....Supt. Western div.....Raleigh, N. C.

NORFOLK & WESTERN

The organization of the Norfolk & Western was given in the *Railway Age* of March 5, page 746. Additional appointments have been announced as follows:

I. W. Booth.....Secretary.....Philadelphia
 J. B. Lacy.....Treasurer.....Roanoke, Va.
 T. S. Davant....Vice pres.; traffic....."
 J. R. Ruffin.....Freight traffic manager...."
 W. B. Bevell....Pass. traffic mgr....."
 B. W. Herrman..General freight agent....."
 T. D. Hobart....Gen. coal freight agent....."
 T. G. Wood.....Agricultural agent....."

In last week's issue, Mr. Davant's name was incorrectly given as T. S. Durant.

PENNSYLVANIA RAILROAD

In addition to the officers on the Pennsylvania, announced in the *Railway Age* of February 30 (pages 597 to 600), the following appointments have been made in the signalling department:

Eastern Region

J. C. Jones.....Supt. telegraph and signals.Philadelphia
 W. N. Spangler..Asst. supt. tel. and sig....."

Central Region

W. M. Post.....Supt. tel. and sig.....Pittsburgh
 L. Behner.....Asst. supt. tel. and sig....."

Northwestern Region

C. W. Hixson....Supt. tel. and sig.....Chicago

Southwestern Region

E. B. Pry.....Supt. tel. and sig.....St. Louis

PERE MARQUETTE

A portion of the new organization of the Pere Marquette was given in the *Railway Age* of March 5, page 746. Additional appointments are announced as follows:

E. E. Cain.....General superintendent....Detroit
 H. O. Halsted....Supt. car service....."
 A. E. Badger....Asst. to general manager.."
 C. M. Booth.....Freight traffic manager...."
 W. L. Mercereau..Supt. steamships.....Ludington, Mich.
 R. P. Patterson..General freight agent.....Detroit

PIEDMONT & NORTHERN

Officers of the Piedmont & Northern have been announced as follows:

E. Thomason....Vice pres. and gen. mgr....Charlotte, N. C.
 Bond Anderson..Auditor....."
 J. S. Cureton....Gen. freight and pass. agt..Greenville, S. C.
 W. T. Gill.....Freight claim agent.....Charlotte, N. C.
 C. W. Crosby....Transportation supt.....Greenville, S. C.
 W. L. Hogan.....".....Charlotte, N. C.
 A. D. Frye.....Supt. motive power.....Greenville, S. C.
 D. G. Smith.....Acting roadmaster....."

PULLMAN CAR LINES

The following appointments have been made in the personnel of the Pullman Car Lines, effective with its return to private control:

L. S. Taylor.....Vice pres. & comptroller...Chicago
 L. S. Hungerford..Vice pres. and gen. mgr...."

ST. LOUIS-SAN FRANCISCO

Appointments in the traffic department of the St. Louis-San Francisco have been announced as shown in the following list: Other appointments in the St. Louis-San Francisco organization were given in the *Railway Age* of February 27, page 658, and in the issue of March 5, page 747.

S. S. Butler.....Freight traffic manager....St. Louis
J. N. Cornatzer...Pass. traffic manager.....
C. A. Forrest.....Gen. agent, freight dept....Atlanta
R. C. Gentry.....Gen. agent, pass. dept.....
W. S. Merchant...General agent.....Chicago
C. S. Hall....." " " " " " Cincinnati
A. H. Stevens...." " " " " " Denver
W. C. Preston....General eastern agent.....New York
O. M. Conley....General agent.....Pittsburgh

ST. LOUIS SOUTHWESTERN

In addition to appointments on the St. Louis Southwestern, announced in the *Railway Age* of February 27, page 667, the following have been announced:

J. K. James.....Commercial agent.....St. Louis
E. A. Senneff....." " " " " " San Francisco

SEABOARD AIR LINE

The following appointments on the Seaboard Air Line are also additional to those given in the *Railway Age* of February 27, page 658, and in the issue of March 5, page 748.

B. H. I. Brown...General counsel.....New York

Mr. Brown was incorrectly given in the company's original circular dated February 14 as "advisory counsel."

W. L. Stanley...General attorney.....Atlanta, Ga.

OPERATING DEPARTMENT

M. Welsh.....Chief special agent.....Norfolk, Va.
M. L. Byers.....Chairman, val. dept....." "
C. V. Fleming....Office asst. to vice pres...." "
W. H. King, Jr..Asst. to vice pres....." "
D. N. Bacot.....Asst. to gen. mgr....." "
C. E. Hix.....Supt. transportation....." "
W. F. Williams..Supt. telegraph....." "
W. W. Fuller....Safety supervisor....." "
H. S. Heard.....Supervis'r pass. operations." "

ENGINEERING DEPARTMENT

W. D. Faucette...Chief engineer.....Norfolk, Va.
E. A. Frink.....Principal asst. engineer...." "
E. W. Smith.....Asst. to chief engineer...." "
H. S. Thomas....Engineer of construction.. " "
W. L. Darden....Engineer of buildings....." "
J. B. McClain....Engineer of bridges....." "
D. M. McKey....Locating engineer.....Plant City, Fla.
H. R. Artman....District engineer.....Atlanta, Ga.
L. A. Murr....." " " " " " Portsmouth, Va.
H. B. Cartwright." " " " " " Jacksonville, Fla.
D. A. Leard.....Right of way engineer.....Norfolk, Va.
E. L. Cannon....Office engineer....." "

SOUTHERN PACIFIC COMPANY

The following list of officers of the Southern Pacific Company is a continuation of the list which was given in the *Railway Age* of March 5, pages 748 and 749:

PACIFIC LINES

FREIGHT TRAFFIC DEPARTMENT (CONTINUED)

S. N. Bostwick...Asst. gen. freight agent...San Francisco
J. H. Mulcahy... " " " " " " " "
M. A. Cummings." " " " " " " "
J. T. Saunders... " " " " " " " "
G. J. Blech..... " " " " " " " "
W. F. Miller.... " " " " " " " "
J. M. Fulton.... " " " " " " " "
E. J. Fenchurch.. " " " " " " " "
Wm. C. Fitch....Freight claim agent.....San Francisco
T. H. Griffin....Customs attorney....." "

PASSENGER TRAFFIC DEPARTMENT

Charles S. Fee....Pass. traffic manager.....San Francisco
F. E. Batturs....Asst. pass. traffic mgr....." "
F. S. McGinnis...General pass. agent.....Los Angeles
John M. Scott....General pass. agent.....Portland, Ore.

E. E. Wade.....Asst. gen. pass. agent.....San Francisco
F. C. Lathrop.... " " " " " " " "
N. Kinell..... " " " " " " " "
F. E. Watson.... " " " " " " " "
J. A. Normandy.. " " " " " " " "
J. M. Fulton.... " " " " " " " "
E. J. Fenchurch.. " " " " " " " "
E. B. Carson....General baggage agent.....San Francisco
H. P. Thrall....Mail traffic manager....." "

ATLANTIC STEAMSHIP LINES

C. W. Jungen....Manager Pier 49, N.R., N.Y.
S. Ira Cooper....Asst. manager....." " "
A. S. Hebble....Supt. engineer....." " "
B. C. Bartholmew.Treasurer " " "
M. Kerr.....Auditor " " "
G. W. von Osthoff.Purchasing agent....." " "
H. Heinze.....Commissary Pier 48, N.R., N.Y.
E. H. Patton....Agent Pier 49, N.R., N.Y.
G. A. Swain....Terminal supt..... Pier 51, N.R., N.Y.
E. E. Lamberton..Asst. manager.....New Orleans, La.
H. M. Wilkins....General agent.....Galveston
A. E. Woodell.... " " " " " " Havana, Cuba

TRAFFIC DEPARTMENT

New York-New Orleans-Galveston Lines

Wm. Simmons....Gen. freight and pass. agt.. New York
C. M. Evans.....Asst. freight and pass. agt.. " "

New Orleans-Havana Line

Charles S. Fay....General freight agent.....New Orleans
J. T. Monroe....General pass. agent....." "

SOUTHERN PACIFIC LINES IN TEXAS

These lines include the Galveston, Harrisburg & San Antonio; the Texas & New Orleans; the Houston & Texas Central; the Houston East & West Texas; the Houston & Shreveport; the Direct Navigation Co., and the Southern Pacific Terminal Co.

J. Kruttschnitt...Chairman exec. committee..New York
Lewis J. Spence, Director of traffic; W. R. Scott, president
A. K. Van Deventer.Asst. treasurerNew York
Hugh Neill.....Asst. secretary " "
W. R. Scott.....PresidentHouston, Tex.
G. S. Waid.....Vice pres. and gen. mgr.... " "

OPERATING DEPARTMENT

G. S. Waid.....Vice pres. and gen. mgr....Houston, Tex.
J. A. Power.....Supt. mot. power & equip.. " "
E. B. Cushing...Engineer of maintenance... " "
F. M. Lucore....Supt. transportation..... " "

Superintendents

H. J. Micksh....G. H. & S. A.—T. & N. O..Houston, Tex.
L. B. McDonald..G. H. & S. A., Houston div.San Antonio, Tex.
C. R. Morrill....G. H. & S. A., El Paso div.El Paso, Tex.
A. D. Mims.....G. H. & S. A., Victoria div.Victoria, Tex.
W. E. Costello..H. & T. C., First div.....Ennis, Tex.
T. T. Player....H. & T. C., Austin div.....Austin, Tex.
R. T. Walker....H. & W. T.—H. & S....Houston, Tex.

TRAFFIC DEPARTMENT

C. K. Dunlap....Traffic manager.....Houston, Tex.
C. W. Owen.....Asst. traffic manager....." "
T. G. Beard.....General freight agent....." "
S. G. Reed.....Asst. gen. freight agent....." "
W. E. Briggs.... " " " " " " " "
J. C. Brasher.... " " " " " " " "
R. H. Carmichael." " " " " " " "
W. C. McCormick.Asst. gen. frt. & pass. agt..El Paso, Tex.
A. R. Atkinson... " " " " " " " "
Joseph Hellen...Gen. passenger agent.....Houston, Tex.
J. F. Sullivan...Asst. " " " " " " " "
R. L. McKibbin..Gen. baggage & mail agent. " "
T. J. Anderson...Gen. agent, pass. dept....." "
Nat Parks.....Live stock agent.....San Antonio, Tex.

LAW DEPARTMENT

Baker, Botts, Parker & Garwood, general attys., Houston, Tex.

TREASURY AND ACCOUNTING DEPARTMENTS

G. R. Cottingham.Auditor and secretary.....Houston, Tex.
H. S. Walker....Assistant auditor....." "
G. E. McDuffie..Auditor freight accts....." "
H. E. Buse.....Auditor of disbursements.. " "
C. P. Coleman...Auditor of pass. accts....." "
C. B. Udell.....Treas. (except T. & N. O.) " "
E. Dargan.....Treas. T. & N. O. R.R. Co. " "
O. M. Longnecker.Asst. treasurer....." "
J. W. Comiskey..Car accountant....." "

PURCHASING AND STORE DEPARTMENTS

N. P. Randolph...Purchasing agent.....Houston, Tex.
L. B. Wood.....General storekeeper..... " "

SOUTHERN PACIFIC LINES IN LOUISIANA

These include Morgan's Louisiana & Texas Railroad & Steamship Co. and the Louisiana Western:

J. Kruttschnitt....Chairman exec. committee. New York
Lewis J. Spence, Director of traffic; W. R. Scott, president
A.K. VanDeventer. Assistant treasurer..... New York
W.A. Worthington. Vice pres., L. W. R. R. Co. " "
Hugh Neill.....Asst. sec. ML&T; sec. LW. " "
W. R. Scott.....President New Orleans, La.
J. H. R. Parsons...Vice pres. and gen. mgr.... " "

OPERATING DEPARTMENT

J. H. R. Parsons...Vice pres. and gen. mgr.... New Orleans, La.
P. B. Torian.....Supt. terminals..... " "
R. M. Glover.....Superintendent Lafayette, La.

TRAFFIC DEPARTMENT

Charles S. Fay....Traffic manager..... New Orleans, La.
Jos. Lallande....General freight agent..... " "
W. H. Stakelum...Asst. gen. freight agent... " "
John T. Monroe...General pass. agent..... " "
H. M. Moors....Freight claim agent..... " "
W. H. Wynne....Commercial agent..... " "
R. L. McKibbin...Gen. bagg. & mail agent.... Houston, Tex.

LAW DEPARTMENT

Denegre, Leovy & Chase..General attys..... Houston, Tex.

PURCHASING DEPARTMENT

N. P. Randolph...Purchasing agent..... Houston, Tex.

TREASURY AND ACCOUNTING DEPARTMENTS

G. B. Herbert....Auditor New Orleans, La.
G. B. Herbert....Sec. ML&T; asst. sec. LW. " "
St. D. J. de Blanc. Treasurer " "
John McGraw....General agent..... " "

ARIZONA EASTERN

J. Kruttschnitt... Chairman exec. committee. New York
Lewis J. Spence, Director of traffic; Epes Randolph, president
A. D. McDonald...Vice pres. & comptroller... New York
Hugh Neill.....Assistant secretary..... " "
A.K. VanDeventer. Assistant treasurer..... " "
Epes Randolph...President Tucson, Ariz.
L. H. Long.....Vice president..... " "
J. C. McClure....Asst. to president..... " "
T. A. Duff.....Auditor " "
John E. White....Treasurer " "
E. J. Fenchurch..Gen. freight & pass. agent.. " "
C. J. Hellerstedt..Secretary " "
C. M. Scott.....General manager..... Phoenix, Ariz.
H. Weitzel.....Superintendent " "
Max Fiedler..... " Globe, Ariz.

SOUTHERN PACIFIC OF MEXICO

J. Kruttschnitt....Chairman exec. committee. New York
Lewis J. Spence.. Director of traffic; Epes Randolph, president
J. P. Blair.....General counsel..... New York
A. D. McDonald...Vice pres. & controller..... " "
L. H. Long.....Vice president..... Tucson, Ariz.
C. J. Hellerstedt..Asst. secretary..... " "
A.K. VanDeventer. Treasurer New York
Hugh Neill.....Secretary " "
Epes Randolph...President Tucson, Ariz.
J. C. McClure....Asst. to president..... " "
John E. White....Asst. treasurer..... " "

TRAFFIC DEPARTMENT

H. Lawton.....Gen. freight & pass. agent.. Guaymas, Sonora
W. H. Francis....Asst. gen. frt. & pass agent. " "

MAINTENANCE AND OPERATING DEPARTMENTS

H. J. Temple....General supt..... Empalme, Sonora
J. B. Finley....Asst. gen. supt..... " "
J. D. Mathews...Engineer maint. of way.... " "
M. J. Kingsbury..Superintendent " "
J. A. Small..... " Naco, Sonora
R. Castaneda.... " Guadalajara, Jalisco
V. W. Bennett.... " Mazatlan, Sinaloa
Dr. E. C. Houle..Chief surgeon..... Empalme, Sonora

TOLEDO TERMINAL

The following is the organization of the Toledo Terminal, effective with its return to private control:

A. B. Newell....President and gen. mgr.... Toledo, Ohio
D. C. Follas....Secretary and auditor..... " "
W. L. Schulte....Treasurer " "
E. J. Marshall...General solicitor..... " "
H. W. Fraser....General attorney..... " "
J. F. Withrow...Superintendent " "
C. H. McKeand...Purchasing agent..... " "
J. Wanbecq.....Engineer " "

TOLEDO & OHIO CENTRAL

The re-election of F. B. Sheldon as vice-president of the Toledo & Ohio Central, the Zanesville & Western, the Kanawha & Michigan and the Kanawha & West Virginia, with headquarters at Columbus, was noted in the *Railway Age* of February 27 (page 659), under the head of New York Central Lines. Other appointments on the Toledo & Ohio Central and the three other roads mentioned have since been announced as follows:

J. B. Wagner....Auditor Columbus, Ohio
E. N. Bennett....Treasurer " "
H. E. Sparks....General manager..... " "

WABASH

Through an inadvertence the names of several officers of the Wabash were incorrectly included in the *Railway Age* of last week under the head Baltimore & Ohio, on page 737. These names should have been included with the remainder of the Wabash appointments on page 752, and are as follows:

A. O. Cun'gham. Chief engineer..... St. Louis
R. H. Howard...Chief engr. maint. of way.. " "
E. F. Needham...Supt. of motive power.... Decatur, Ill.
T. J. Frier.....Purchasing agent..... St. Louis

WESTERN MARYLAND

The following is the new organization of the Western Maryland, insofar as it was available at the time of going to press:

Lawrence Greer.. Chairman of the board.... New York
M. C. Byers....President Baltimore
L. F. Timmerman. Secretary and treasurer... New York

PURCHASING DEPARTMENT

M. E. Towner....General purchasing agent.. Baltimore
E. Jones.....Asst. to gen. purch. agent.. " "
J. M. Cain.....Tie and timber agent..... " "
J. L. Gorsuch....Stationer " "
R. R. Kane.....General storekeeper..... Hagerstown, Md.

TRAFFIC DEPARTMENT

D. G. Gray.....Vice pres., traffic..... Baltimore

Freight

J. W. Allison....Freight traffic manager.... Baltimore
T. H. Fee.....Asst. gen. freight agent.... " "
M. H. Jacobs....Asst. gen. freight agent.... Pittsburgh
W. S. Burton....Freight tariff agent..... Baltimore
W. A. Shropshire. Division freight agent.... Cumberland, Md.
L. A. McAbee.... " Hagerstown, Md.
S. J. Lamoreux...Gen. eastern freight agent.. New York
C. B. Oakley....Commercial freight agent.. Baltimore
George J. Davis.. " Philadelphia
J. A. S. Wallace.. " Pittsburgh
H. A. Gebelein... " New York
C. E. Edwards.... " York, Pa.
J. E. Hutchinson. " Minneapolis, Minn.

WESTERN PACIFIC

The following appointments on the Western Pacific are additional to those announced in the *Railway Age* of February 27, page 659:

W. G. Bruen....Statistician San Francisco
F. W. Hodges....Asst. gen. pass. agent..... " "
W. J. Shotwell...Asst. gen. frt. agent..... " "
Theodore Harte.. " " "
B. F. Nevins....Gen. live stock agent..... " "
T. Noel.....Foreign freight agent..... " "
W. F. Whiteman. Freight claim agent..... " "
L. J. Kerrigan...Claim agent..... " "
T. W. Huntington. Chief surgeon..... " "
W. R. Groom....Chief special agent..... " "
J. L. Smith.....Tax agent..... " "
F. K. Kergan....Lease agent..... " "
C. E. Benton....Supt. d. c. and hotels..... Oakland, Cal.
J. T. Gardner...General storekeeper..... Sacramento, Cal.
J. S. Spelman....Supt. Western div..... " "

Western Pacific (Continued)

M. O'Connor.....Supt. Eastern div.....Elko, Nev.
 A. H. Powell.....General master mechanic...Sacramento, Cal.
 T. R. Miller.....Master mech., West. div....
 W. T. Abington...Master mech., East. div....Elko, Nev.
 T. L. Phillips.....Div. engr., West. div.....Sacramento, Cal.
 G. H. Ballantyne.Div. engr., East div.....Elko, Nev.
 D. N. Neal.....Bridge engineer.....San Francisco

Obituary

E. N. Leamaster, who, prior to his retirement in June, 1919, was district superintendent of the Pullman Company, with office at El Paso, Tex., died on February 29 at his home in that city.

Colonel Carroll M. Bunting, comptroller of the Pennsylvania, died in Philadelphia on March 4. Colonel Bunting was born September 15th, 1871, at Darby, Pa. He was graduated from the Darby Friends School, Philadelphia Public School and Bryant and Stratton's Business College. He began his railroad career in 1887 as bill-of-lading clerk and stenographer to D. W. Farrow, freight agent at Philadelphia for the Chicago, Rock Island and Pacific Railroad Company. He then became employed in the office of the through freight agent of the Philadelphia and Reading Railway and afterwards entered the service of the Northern Pacific and Wisconsin Central in their Philadelphia freight agency. On May 1st, 1890, he entered the service of the Pennsylvania as secretary to Captain John P. Green, then third vice-president of the company. He was made chief clerk to the first vice-president May 1st, 1897, and assistant to the first vice-president June 1st, 1906. On March 24th, 1909, he was appointed assistant comptroller, and on June 1st, 1910, comptroller of the Pennsylvania. Shortly after the United States declared war on Germany Colonel Bunting secured a leave of absence to serve as business manager of the Transportation Corps, American Expeditionary Forces. He was also a member of the staff of Brigadier General W. W. Atterbury, director general of transportation. He returned from France in January, 1919, and had been in poor health since his return.

**C. M. Bunting**

Alexander M. Lupfer, chief engineer of the Spokane, Portland & Seattle, who died in Portland, Ore., on February 3, as noted in the *Railway Age* of March 5, (page 572), was born in Blaine, Pa., in 1855. He graduated from Lafayette College, Easton, Pa., in 1880 and shortly after entered railway service on the New York, West Shore & Buffalo, now the West Shore. He later became connected with the Denver & Rio Grande, on which he served until 1883. In 1884 he was appointed assistant engineer of the Oregon Railroad & Navigation Company, with headquarters at Portland, Ore., and later in the same year entered the employ of the Northern Pacific in the same capacity. In June, 1885, he returned to Portland to engage in private engineering practice. Soon after, however, he was appointed resident engineer of the Chicago, St. Paul & Kansas City, (now the Chicago Great Western); also of the Illinois Central, the Denver & Rio Grande and the Union Pacific, and served in that capacity until 1890, from which time until 1905 he was reconnaissance and location engineer of the Great Northern. From 1905 until 1911, Mr. Lupfer was chief engineer of the Spokane & Inland Empire, with headquarters

at Spokane, Wash. In 1911 he went to Brazil in the interest of mining properties and proposed railroads. During part of 1912 he was associated with John Stevens, who had been engaged to undertake the reconstruction of the railway system in Spain. Returning to America later in the same year, he again became affiliated with the Great Northern. On January 1, 1913, he returned to the Spokane, Portland & Seattle as chief engineer and also served in the same capacity for the Portland & Seattle, the Spokane & Inland Empire and the Oregon Trunk.

John A. Atwood, chief engineer of the Pittsburgh & Lake Erie and the Monongahela, with headquarters at Pittsburgh, Pa., died at his home in that city on February 29. Mr. Atwood was born at Chatham, Mass., on February 8, 1857. He graduated from New York University in 1878 and entered railway service in the same year as a transit man on the New York Elevated. In March, 1879, he was appointed a rodman and later a leveler of the Elizabeth City & Norfolk. In 1880 he was appointed a draftsman on the New York, Lake Shore & Buffalo, serving in that position until 1883, when he was appointed assistant to the chief engineer of the Tenth Avenue Cable Railway in New York City. From 1885 to 1887 he was resident engineer of the Chautauqua Lake, and, from the latter date until 1889, assistant engineer on the Lake Shore & Michigan Southern. In 1889 he was appointed engineer of construction on the Pittsburgh & Lake Erie, retaining that position until 1896, when he was appointed chief engineer. Mr. Atwood was also second vice-president of the American Railway Engineering Association.

**J. A. Atwood**

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Scenes from Foreign Ports—Batavia, Java